



Software Requirement Specification

Project: Data Management Module Version no. 1.2

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Executive Summary

Poraver (further referred as "client") has 600+ recipes for polymers managed in excel sheets. Client wants to change it to an "electronic format". Client wants to set up a database for recipes which should allow users to filter and access the recipes by parameters. The proposed system will be a web-based application to manage and retrieve the recipes records. The mobile responsive screens will allow sales user to access a search dashboard and download Product sheets in .pdf format. The web app will allow admin to create and manage users, roles, recipes and test results. Admin will be able to create eg. Lab and Management users, that will in example be able to login to the system and access recipes and manage test information.

In the future scope, recipes will be linked to the respective customer and orders that we will pass on to production planning via the MES system. In current phase, all the data input is manual, in future phase the system is proposed to be integrated with ERP and Sensors used in recipe production.

Scope of Work

• Admin User – Web Application

Note: Admin will be add new roles as per the choice and requirement through the proposed role master.

Third party Integrations

Email Gateway





Functional Requirement:

Modules for Admin:

Login Screen

Actors	Admin	
Interface	Web, Mobile	
Requirement Definition	Admin should be able to log in using valid credentials.	
Pre - Condition	Admin Login form will be displayed.	
Post - Condition	Admin will view the dashboard page and access the system.	
Business Rules / Logic	 Admin will enter the login credentials. Admin will view the dashboard upon login. Admin will be able to reset the password using the "reset password" link on the login page. The system will throw an error in case the Email ID/User ID is invalid. 	
	<u>User Onboarding:</u>	
	Admin users with user role creation access will be able to create new users and assign roles.	
	 The users will receive a password set up email on the registered email address after the admin creates a user record. By clicking the password setup link, users will create a 	
	new password and log in. • After the password setup of password, the users will redirect to the login page.	
	Reference: Wireframe - Account password setup email template	
	Login: Admin will be able to log in using the below credentials: • Email ID / User ID • Password	



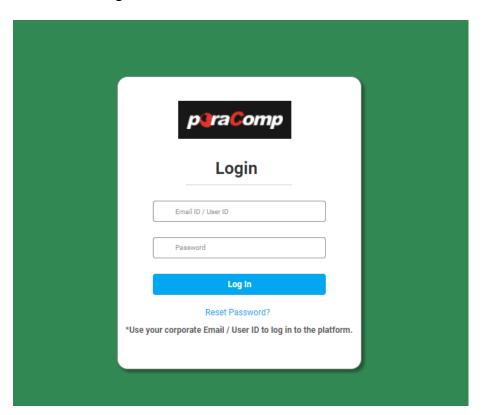


	<u>Links:</u>		
	Reset Password		
	Logout The user will be able to leg out by	relieving on the logout link under	
	the profile icon.	y clicking on the logout link under	
	the profile icon.		
	Reference: Wireframe - Login So	creen	
Fields and Validation	- On successful validation of login credentials, Admin can		
	view/access the platform	1.	
	- If the Email ID/User ID	is incorrect, the admin will be	
	prompted to enter the correct email ID.		
	"Email ID / User ID is incorrect"		
	- The Email ID needs to match the domain which belongs		
	to the client. E.g. thomas@proraver.in. Else system will		
	throw an error "Please enter Valid Email Address".		
	- If the entered password is not valid, the system will		
	prompt the admin to ent	er a correct password.	
	"Password is incorrect"	T e	
	Email ID / User ID	Text Field	
	Password	Text Field	
		- TONE FIGURE	
	Login	Button	
	Reset Password	Link	

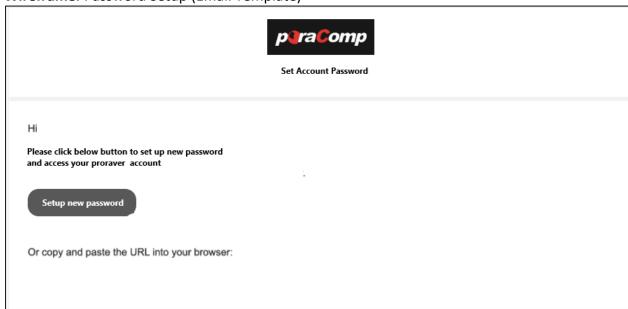




Wireframe – Login



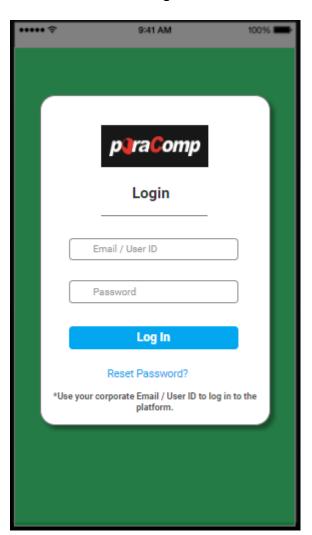
Wireframe: Password Setup (Email Template)







Mobile Wireframe – Login







Dashboard

_		
Actors	Admin	
Interface	Web, Mobile	
Requirement	Admin will be able to view the dashboard with the recipes.	
Definition		
Pre - Condition	Admin has logged in using a valid email ID.	
Post - Condition	Admin will be able to view the dashboard after logging in.	
Business Rules / Logic	The dashboard will display below:	
Logic	Recipe Search (Search bar)	
	The recipe search will allow a user to search for a specific recipe.	
	The search bar will allow users to enter keywords and will display	
	suggestions based on the user inputs.	
	After clicking on the suggested recipe in the suggestion, the	
	admin will be able to view the recipe in detail. After clicking enter	
	on the search window with the keyword, the matching results for	
	recipes will be displayed.	
	Select Properties (Filter)	
	The users will be able to select the properties of the recipe	
	search. Based on the selection, the matching results will be	
	displayed to the user. If the selected property is part of the	
	recipe, the results will be displayed.	
	Reset Filters	
	The Admin will be able to reset the selected filters.	
	Filter (Min-Max)	
	Tensile Module in MPa	
	Tensile Strength in MPa	
	Charpy impact strength in kJ/m²	
	The filter will allow the war to calcut the war of the Track	
	The filter will allow the user to select the range of the Tensile module in MPa. Users will be able to drag to select the range. The	
	range value will be updated based on the user input.	





Once the range has been selected the screen will reload to display the desired results.

Recipes found (Filter Search, Count)

The total count of recipes after the search and filter will be displayed in the total value.

Recipes Grid

The recipes will be displayed in a grid layout. The grid will contain 3 recipes in a column. 4-5 rows. The user will have an option to view more recipes in the grid using the pagination options.

Recipe Details

Every grid will display basic information about the recipe. The recipe grid will contain the recipe name, a short description, and bars displaying Strength, Impact, and Tensile.

Note: Users will be able to click on a recipe grid to navigate to the detailed view of the recipe. Refer Module: Recipe Details.

Calculation of Strength, Impact, and Tensile Modulus on Bars.

This needs to be split up into Strength, Impact, and tensile.

Values:

Strength 1-200 MPa
 Impact: 1-200kJ/m²

Tensile Modulus: 1-10000 MPa

Based on the actual values of the recipe for strength, Impact, and Tensile, the bar will display color.

Strength	
Impact	
Tensile	

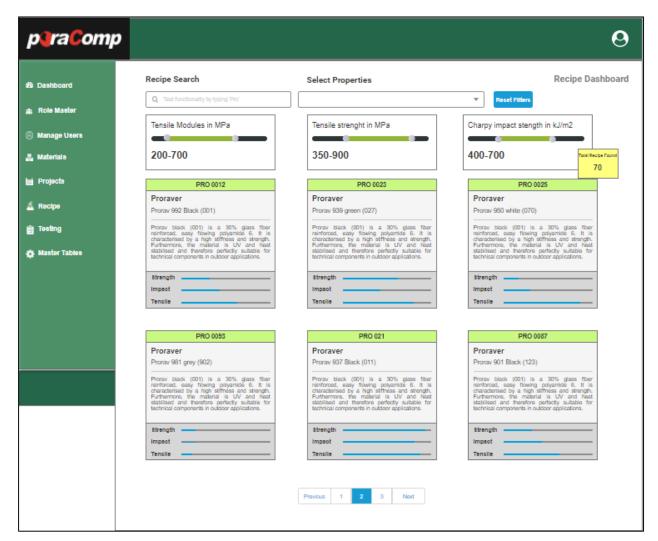
Note: All the recipe attribute information will be added through the recipe module.

Reference: Wireframe - Dashboard





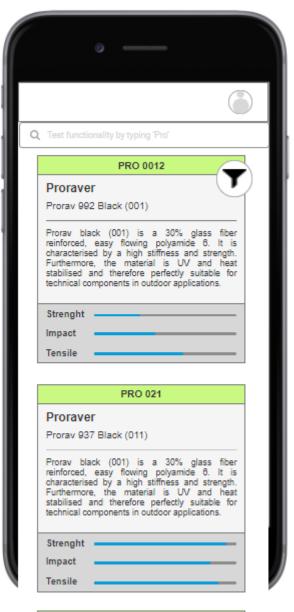
Wireframe: Dashboard







Mobile Wireframe: Dashboard



PRO 0023





Recipe Details

Actors	Admin	
Interface	Web, Mobile	
Requirement Definition	Admin will be able to view the list of the recipe details.	
Pre - Condition	Admin has logged in using a valid email id.	
Post - Condition	Admin will be able to view the dashboard after logging in and view the recipe details from the dashboard.	
Business Rules /	The recipe details will be as below:	
Logic	Below will be displayed in read-only format.	
	Product Name	
	 Recipe Number 	
	– Comment	
	Mechanical properties	
	Every mechanical property will have two numeric input fields, d.a.m and conditioned.	
	 Tensile modulus (1 mm/min ISO 527-2) Stress at yield(50 mm/min ISO 527-2) Strain at yield(50 mm/min ISO 527-2) Strain at break(50 mm/min ISO 527-2) Flexural modulus(2 mm/min ISO 178) Flexural strength(2 mm/min ISO 178) Flexural strain at break(2 mm/min ISO 178) Charpy impact strength(23°C ISO 179-1/1eU) Charpy impact strength(-30°C ISO 179-1/1eU) Charpy notched impact strength(23°C ISO 179-1/1eA) Charpy notched impact strength(-30°C ISO 179-1/1eA) Izod-notched impact strength(-30°C ISO 180/1A) Izod-notched impact strength(-20°C ISO 180/1A) Izod-notched impact strength(-40°C ISO 180/1A) 	
	 Shore D Hardness(23°C DIN 53 505) 	





Temperature properties

Every Temperature property will have a single field with a text input box.

- The temperature of deflection under load HDT/A(1,8 MPa | ISO 75)
- Temperature of deflection under load HDT/B(0,45 MPa | ISO 75)
- Melting temperature(DSC, 10K/min | DIN EN ISO 11357-3)
- Coefficients of linear thermal expansion, parallel(23°C bis 80°C | ISO 11359-1/2)
- Coefficients of linear thermal expansion, transverse(23°C bis 80°C | ISO 11359-1/2)

Flammability properties

Every flammability property will have a single field with a text input box.

- Burning rate(UL 94), 1,6mm Wall thickness
- GWFI(IEC 60695-2-12) 1,6mm Wall thickness
- GWIT(IEC 60695-2-13) 1,6mm Wall thickness
- Burning rate (<100 mm/min)(> 1 mm Thickness | FMVSS 302)

General Properties

Every flammability property will have a single field with a text input box.

- Density(23°C | ISO 1183)
- Humidity absorption(70°C, 62% r.H. | ISO 1110)
- Molding shrinkage(flow | ISO 294-4)
- Molding shrinkage(transverse | ISO 294-4)
- MFR
- MVR

Electrical Properties





Every electrical property will have a single field with a text input box.

- Volume resistivity(DIN EN 62631-3-1)
- Volume resistivity(DIN EN 62631-3-1)
- Surface resistivity(DIN EN 62631-3-2)
- CoMParative tracking index(Test liquid A | IEC 60112)

Properties

Every property will have a checkbox.

- Sustainable
- flame retardant
- heat stabilized 130
- heat stabilized 160
- heat stabilized 230
- hydrolysis/ chemically stabilized
- laser transparent
- laser markable
- low warpage
- reduced density
- reduced moisture
- electrically neutral
- UV-stabilized
- surface-modified
- adhesion modified
- Tribological modified
- easy flow
- nucleated
- process improved
- fluid injection (GIT/WIT/FIT)
- recycled content
- 3D printing/ additive manufacturing

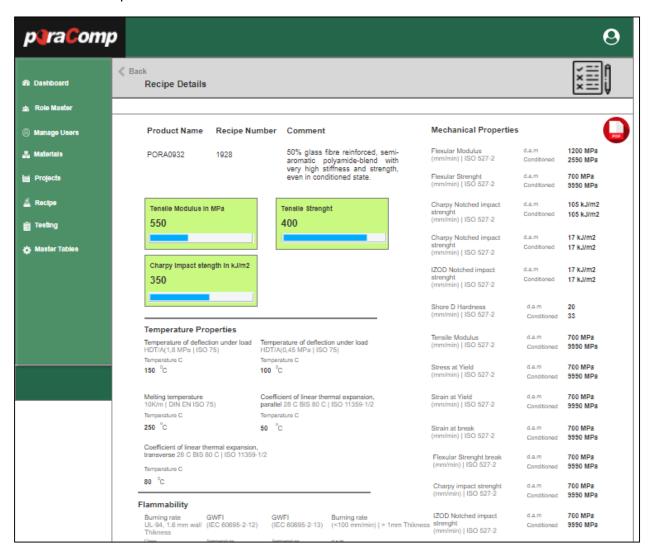
Note: The users will be able to print the recipe in PDF format using the Print PDF button.

Reference: Recipe Details





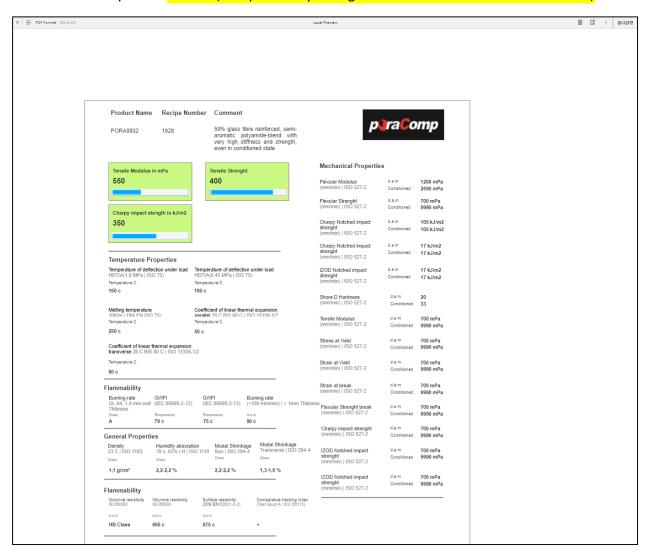
Wireframe: Recipe Details







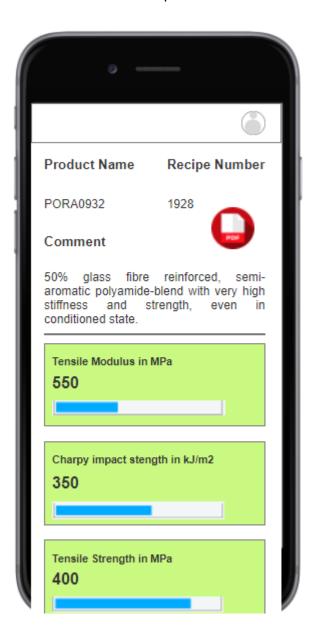
Wireframe: Recipe PDF format (Template may change if the client shares another format)







Mobile Wireframe: Recipe Details







Reset Password

Actors	Admin	
Interface	Web, Mobile	
Requirement Definition	Admin should be able to reset the password.	
Pre - Condition	Admin clicks reset password link.	
Post - Condition	Admin will be able to create a new password.	
Business Rules / Logic	In case the admin loses the account password, the admin will be able to create a new password using the registered corporate email address or User ID. The admin will click the "reset password" link on the login page which will redirect the user to the send password reset link page. On the password reset link to page, the admin will type in the registered email address/ User ID and click the "Send password link" to receive the password to the registered email ID. The user will type in the registered email ID. If the email ID/User ID matches the registered email address/User ID, the system will display, "Email Sent" on the screen. If the email entered by the user does not match any registered email address the system will display, "Please check your email ID/User ID" on the screen. Below will be the user inputs on the reset password link page. - Email id Reference: New Password	
	New Password Setup	
	 On clicking the password reset link received in the email, the users will be able to set up a new password. 	
	The user will be allowed to enter a new password in two fields, new password & Confirm Password.	



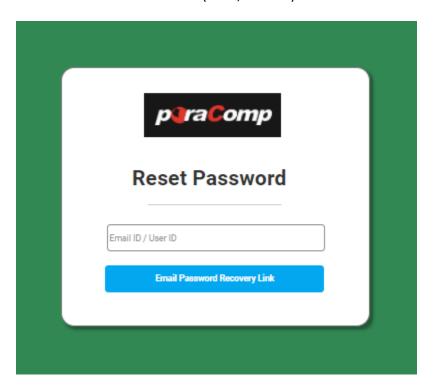


	 Once the new password matches with confirm the password and is saved, the password will be reset. The user will redirect to the dashboard with a confirmation message, "Password Reset Successful" 		
	Reference: Wireframe		
	Password reset email template		
	New Password setup page		
Fields and Validation	 If the Email-id is incorrect, the admin will be prompted to enter the correct email ID/User ID. The Email ID needs to match the domain which belongs 		
	to the client.		
	Email ID/User ID	Text Field	
	Send Password Reset Link	Button	
	Password Reset Page		
	New Password	Password	
	Confirm Password	Password	

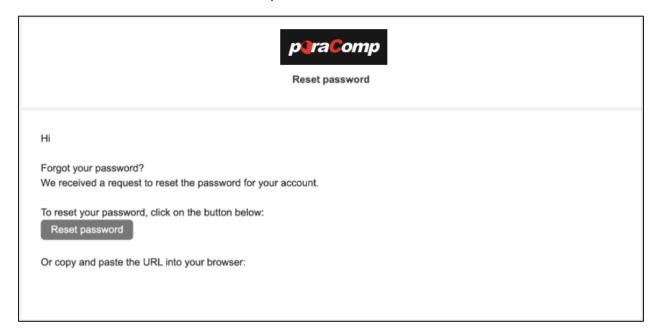




Wireframe: Reset Password (Web, Mobile)



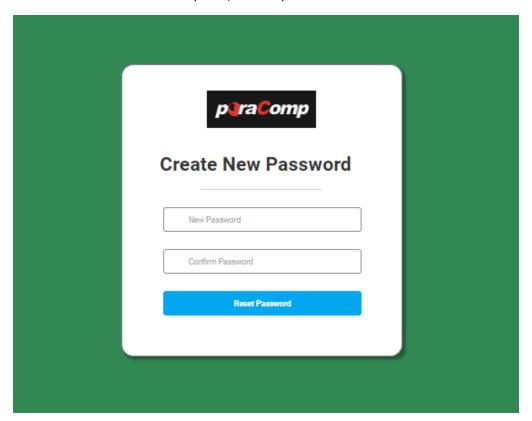
Wireframe: Password Reset Email Template







Wireframe: New Password (Web, Mobile)



Role Master

	,	
Actors	Admin	
Interface	Web	
Requirement	Admin will be able to view the list of role masters.	
Definition		
Pre - Condition	Admin has logged in using a valid email id.	
Post - Condition	Admin will be able to access the role master page and perform available activities.	
Business Rules /	Only Admin user has access to role master and functionality.	
Logic	The following fields will be visible on the screen. (Role master	
	screen)	
	Role master list table including the following columns :	
	- Role ID	
	- Roles	





- Action
- Check box

With the click of "Add New Role", Admin will land on creating a new role screen.

<u>Pagination</u> – The role master table will have pagination. Pagination will help users to get an idea of a number of records and navigate easily through a big list.

Reference: Wireframe – Role List

On the Role creation screen, Admin will be able to fill the following fields:

- Role Name
- Role Management

Check box:

- Access Yes/No? Admin will select if new roles should have access to the Role management module.
- If Admin selects yes, Admins needs to select the rights given to the respective role i.e.; create, edit, and delete.
- User Management

Check box:

- Access Yes/No? Admin will select if new roles should have access to the User management module.
- If Admin selects yes, Admins needs to select the rights given to the respective role i.e.; create, edit, and delete.
- Project

Check box:

- Access Yes/No? Admin will select if new roles should have access to the Project module.
- If Admin selects yes, Admins needs to select the rights given to the respective role i.e.; create, edit, and delete.
- Recipe

Check box:

 Access Yes/No? – Admin will select if new roles should have access to the Recipe module.





- If Admin selects yes, Admins needs to select the rights given to the respective role i.e.; create, edit, and delete.
- Testing

Check box:

- Access Yes/No? Admin will select if new roles should have access to the Testing module.
- If Admin selects yes, Admins needs to select the rights given to the respective role i.e.; create, edit, and delete.
- Dashboard

Check box:

 Access Yes/No? – Admin will select if new roles should have access to the Dashboard.

Note: No values can be modified on the dashboard or recipe details.

- Master Tables

Check box:

- Access Yes/No? Admin will select if new roles should have access to the Master Tables.
- If Admin selects yes, Admins needs to select the rights given to the respective role i.e.; create, edit, and delete.

With the click of the "back" button, Admin can navigate back to the role master table.

With the click of the "Edit" button, under the action column in the table, the admin will land on the respective role edit screen.

Admin will be able to edit the following pre-filled data fields:

- Role Name
- Role Management Check box: Need to select the rights given to the respective role i.e.; create, edit, delete, and view.
- User Management Check box: Need to select the rights given to the respective role i.e.; Yes or No.
- Project Check box: Need to select the rights given to the respective role i.e.; Yes or No.
- Recipe Check box: Need to select the rights given to the respective role i.e.; Yes or No.





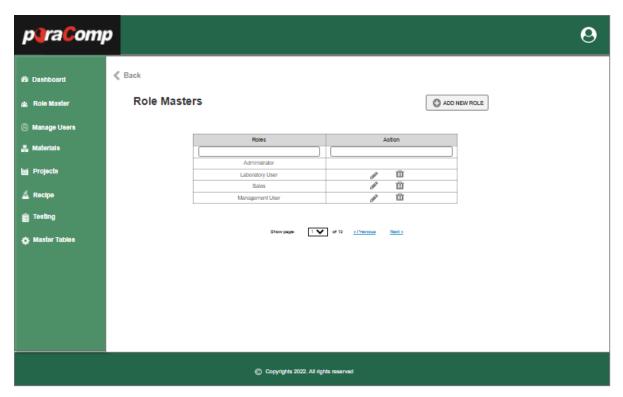
	 Testing: Need to select the rights given to the respective role i.e.; Yes or No. Dashboard: Need to select the rights given to the respective role i.e.; Yes or No. The Admin will be able to edit a role. The admin will be able to delete the roles other than the Administrator. The Admin will be able view the roles through the view only option/ The Admin will not be able to update/delete the administrator role. Reference: Wireframe – New/Edit Role 		
Fields and Validation	Wireframe: Role Master		
	Search	Button	
	Reset Filter	Link	
	Create New Role	Button	
	Edit	Button	
	View	Button	
	Delete Button		
	Wireframe: Create/Edit Role		
	Role Name	Text Field	
	Role Management	Check box	
	User Management	Check box	
	Project	Check Box	
	Recipe	Checkbox	





	Save	Button

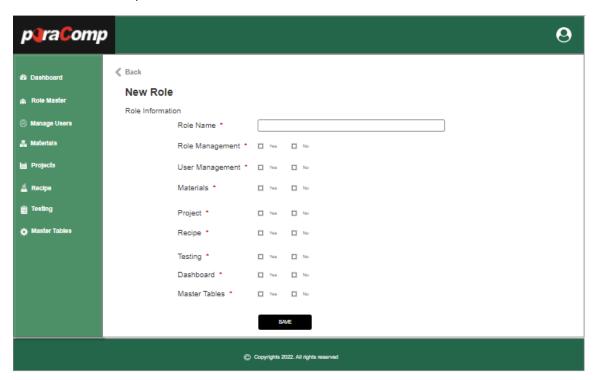
Wireframe: Role Master







Wireframe: Create/edit new Role



Manage Users

Actors	Admin
Interface	Web
Requirement	Admin will be able to view the list of users using the platform.
Definition	
Pre - Condition	Admin has logged in using a valid email ID.
Post - Condition	Admin will be able to access the user's page and perform
	available activities
Business Rules /	Following fields will be a visible on-screen Manage user screen
Logic	Manage user list table including following columns:
	- User ID
	- First Name
	- Last Name
	- Email
	- Account Status
	- Role





- Phone Number

With the click of "Create", Admin will land on the "create new role" screen.

With the click of the "back" button, Admin will be navigated back to the role master table.

With the click of the "Search" button, the admin will be able to view the search result on the same page.

On click of the "Edit" button from the table under the action, the admin will land on the edit user screen.

<u>Pagination</u> – The user's table will have pagination. Pagination will help users to get an idea of a number of records and navigate easily through big list.

Reference: Wireframe – User Master

New User Creation form-

- User ID This will be an auto-generated field. The values generated will be in format PRO0001
- First Name (Mandatory Filed)
- Last Name (Mandatory Filed)
- Email (Mandatory Filed)
- Account Status (Mandatory Field)
- Role (Mandatory Filed)
- Phone Number (Mandatory Filed)

The system will throw an error message if values are not added in the mandatory fields.

Save – The users will be able to save the record using the save button. If users attempt the exit without saving, the system will show a popup to allow users to confirm the exit without saving.

Reference: Wireframe – Create/Edit User



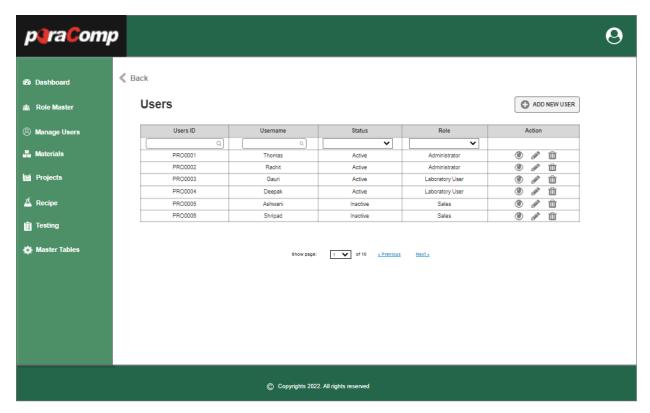


Fields and Validation	Wireframe: Role Master	
	Search	Button
	Reset Filter	Link
	Create New User	Button
	Edit	Button
	View	Button
	Delete	Button
	Wireframe: Create New User/ I	Edit User
	User ID	Auto-generated
	First Name	Text Field
	Last Name	Text Field
	Email	Text Field
	Account Status	Drop-Down
	Role	Drop-Down
	Phone Number	Text Field
	Save	Button
	Back	Button





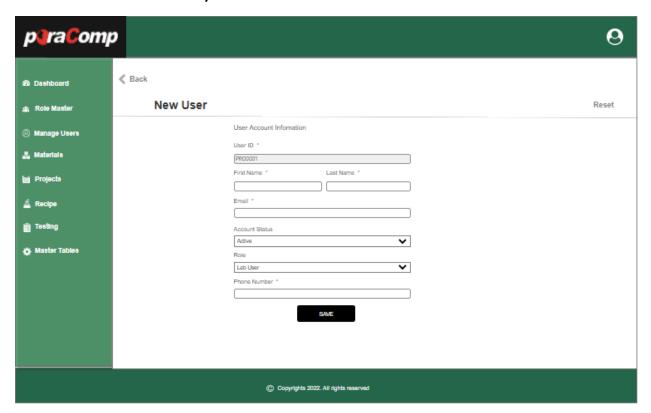
Wireframe: User Master







Wireframe: Create New User/Edit User







Material Master

Actors	Admin
Interface	Web
Requirement Definition	Admin will be able to view the list of Materials.
Pre - Condition	Admin has logged in using a valid email id.
Post - Condition	Admin will be able to access the material master page and perform available activities.
Business Rules / Logic	Admin user has access to material master with creating, read, and update and delete functionality. The following fields will be visible on the screen. (Material master screen) Role master list table including the following columns: - Material No. - Type - Designation - Manufacturer - Quantity [Kg] - Storage Location - Density [g/cm³] - MVR/MFR - Test Method - TDS: Will contain a download link for the file uploaded on create screen. - MSDS: Will contain a download link for the file uploaded on create screen. With the click of "Add New Material", Admin will land on create new material screen. Reference: Wireframe - Role Master On the material creation screen, Admin will be able to fill the following fields: - Material Name - Type - Manufacturer: Values in search are fetched from Manufacturer Master





- Supplier: Values in search are fetched from Supplier Master
- Quantity [Kg]
- Storage Location
- Density [g/cm³]
- MVR/MFR: Values in the dropdown will be fixed as below.
 - 190 °C/2,16 kg
 - 190 °C/5 kg
 - 190 °C/21,6 kg
 - 200 °C/5 kg
 - 220 °C/10 kg
 - 230 °C/2,16 kg
 - 230 °C/3,8 kg
 - 230 °C/5 kg
 - 250 °C/2,16 kg
 - 260 °C/2,16 kg
 - 280 °C/2,16 kg
 - 300 °C/1,2 kg
 - 330 °C/2,16 kg
 - 340 °C/2,16 kg
- Test Method
- TDS
- MSDS
- Description

Save – The Admin will be able to save the record using the save button. If users attempt the exit without saving, the system will show a popup to allow users to confirm the exit without saving.

With the click of the "back" button, can navigate back to the role master table.

With the click of the "Edit" button, under the action column in the table, the admin will land on the respective material edit screen.

With the click of the "Export" button, the admin will be able to export the material data in excel format. Admin will be able to select all or multiple rows to be exported to the excel sheet.





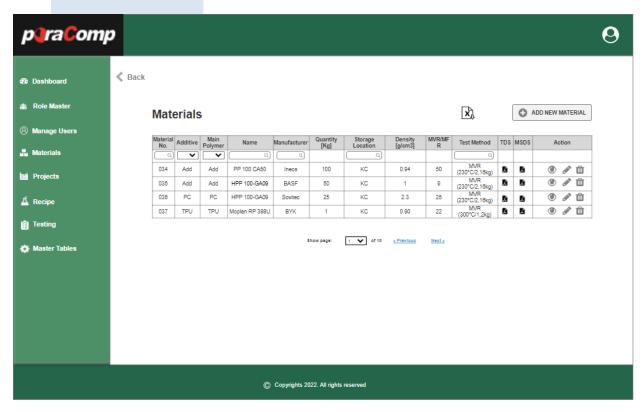
	With the click of the "Delete" button, Admin will be able to delete the material records. Note: When the user attempts to delete a material record, the user will be shown an alert popup to confirm the deleting. Pagination – The Materials table will have pagination. Pagination will help users to get an idea of a number of records and navigate easily through big list.	
	Reference: Wireframe – New Ro	ole
Fields and Validation	Wireframe: Material Master	
	Search	Button
	Reset Filter	Link
	Create New Material	Button
	Edit	Button
	View	Button
	Delete	Button
	Export	Button
	Wireframe: Create/Edit Materia	al
	Material Name	Text Field
	Polymer Type	Text Field
	Additive Type	Text Field
	Manufacturer	Text Field with search
	Supplier	Text Field with search
	Quantity	Text Field
	Storage Location	Dropdown





Density	Text Field
MVR/MFR	Dropdown
Test Method	Dropdown
TDS	Upload PDF
MSDS	Upload PDF
Description	Text Field
Save	Button

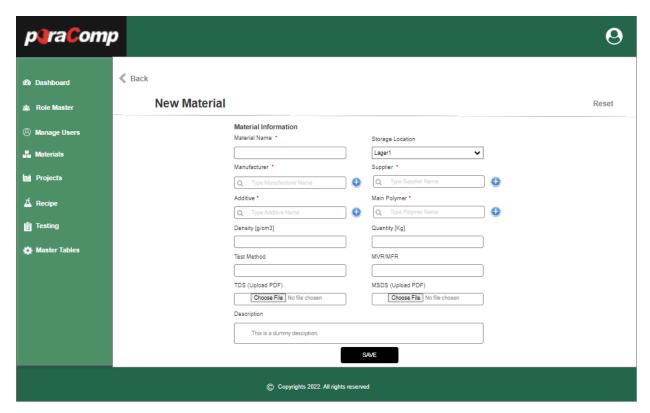
Wireframe: Material Master







Wireframe: Create new Material







Project List

Actors	Admin
	/ Committee
Interface	Web
Requirement Definition	Admin will be able to view the list of projects.
Pre - Condition	Admin has logged in using a valid email id.
Post - Condition	Admin will be able to access the project list and perform available activities.
Business Rules / Logic	Admin user has access to project list with creating, read, update and delete functionality. The following fields will be visible on the screen. (project list screen) project list table including the following columns: - Area - Project Name - Project Number - Project Type - Priority - Status - Start Date - End Date - Status - Edit - Delete With the click of "Add New Project", Admin will land on create new Project screen. Reference: Wireframe - Project List On the Project creation screen, Admin will be able to fill the following fields: - Project ID - Status - Project Type





	Project Type will be a dropdown with fixed values as Predevelopment, Application development, Service. The area will be a dropdown with fixed values as Rotomolding, Injection molding, Blow molding. Project Name Project Description Project Start date Project End date Project Priority Save Save Save — The Admin will be able to save the record using the save button. If users attempt the exit without saving, the system will show a popup to allow users to confirm the exit without saving. When clicked on the "back" button, the admin can navigate back to the Project list screen.	
	When clicked on the "Edit" button, under the action column in the table, the admin will land on the respective project edit screen.	
	When clicked on the "Export" button, the admin will be able to export the project data in excel format. Admin will be able to select all or multiple rows to be exported to the excel sheet.	
	On clicking the "Delete" button, the admin will be able to delete a project. The admin will be prompted with a confirmation popup to confirm the delete. On confirming, the recipe record will be deleted.	
	<u>Pagination</u> – The Projects table will have pagination. Pagination will help users to get an idea of a number of records and navigate easily through a big list.	
	Reference: Wireframe – Create/Edit Project	
Fields and Validation	Wireframe: Project List	
	Search	Button



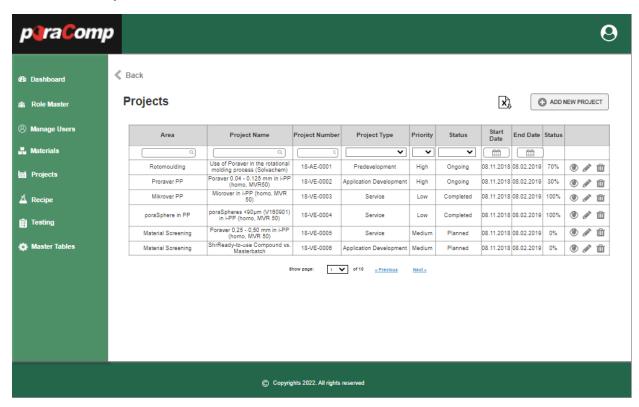


Reset Filter	Link
Add New Project	Button
Edit	Button
View	Button
Delete	Button
Export	Button
Wireframe: Create/Edit Project	
Project ID	Auto-generated
Project Type	Dropdown
Area	Dropdown
Project Name	Text Field
Project Description	Text Field
Project Start Date	Date
Project End Date	Date
Project Priority	Dropdown
Save	Button

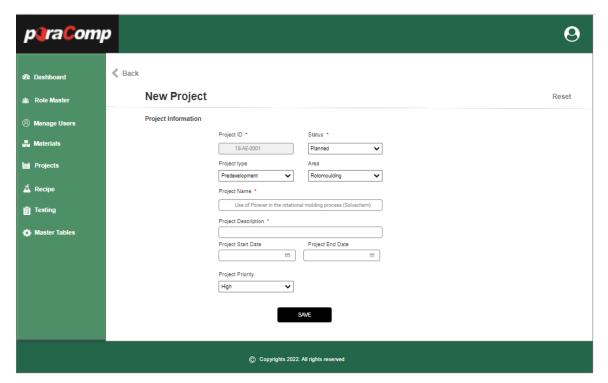




Wireframe: Project List



Wireframe: New/Edit Project







Recipe List

Actors	Admin	
Interface	Web	
Requirement Definition	Admin will be able to view the list of Recipes.	
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.	
Post - Condition	Admin will be able to access the Recipe list and perform available activities.	
Business Rules / Logic	Admin will be able to access the Recipe list and perform available activities.	



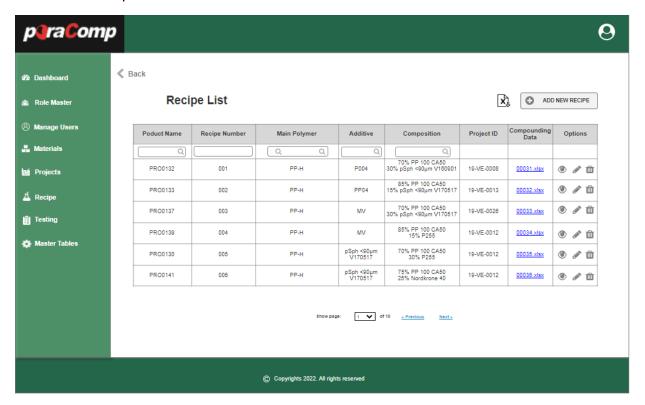


	With a click on the "back" button, Admin can navigate back to the Recipe list screen.	
	With the click on the "Edit" button, under the action column in the table, the admin will land on the respective recipe edit screen.	
	With the click on the "Delete" button, under the options column in the table, the admin will be prompted if he is sure about deleting. On confirming the recipe record will be deleted.	
	With the click on the "Export" button, the admin will be able to export the recipe data in the excel format. The users will be able to select all or multiple rows to be exported in the excel sheet.	
	The users will be able to filter the list column with the multi- select option. The user will type the search options and enter them, the system will display the rows with the matching records.	
	Reference: Wireframe – Recipe List	
Fields and Validation	Wireframe: Recipe List	
	Search	Button
	Reset Filter	Link
	Add New Project	Button
	View	Button
	Edit	Button
	Delete	Button
	Export	Button





Wireframe: Recipe List



Create/Edit Recipe

Actors	Admin	
Interface	Web	
Requirement	Admin will be able to create a new recipe & edit the recipe in the	
Definition	system.	
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.	
Post - Condition	Admin will be able to access the Recipe module and create a new recipe and update the recipe.	
Business Rules / Logic	Admin user has access to the recipe list with creating, read, update and delete functionality. On clicking the "create new recipe" button, the admin will redirect to the create recipe form page. Users can redirect to the	





edit recipe screen by clicking the "edit" button in the recipe column.

The create/edit recipe form will consist below fields -

Recipe Number – The recipe number will be auto-generated by the system when the user creates a new recipe.

Product Name – The Product name will be a name given to a recipe. It will be a mandatory text field.

Compounding data – This will be a text field where the user will be able to add text.

Additive – This will be a text where the user will be able to add from the dropdown.

Project Number – The user will be able to assign multiple project numbers to the recipe. It will be a search & multi-selection mandatory field. The project values will be fetched from the project master.

Main Polymer – The main polymer will be a mandatory search and multi-select field. The search values will be fetched from the polymer master.

Comment - It will be a free text field to add a comment. It will be non-mandatory.

Components Line Items -

Users will be able to add components to the recipe as line items. Below will be the fields for the new line item.

Component name – The user will be able to select a new component from the dropdown. The values in the component name will be fetched from the material master. It is a mandatory part of the line item.

Note:-

1. The dropdown values for the components will be fetched from the material master.





- 2. If a component is not available in the dropdown, the user will be able to add the material using the "+" add component button.
- 3. Once the component is added and saved the user will redirect back to the recipe creation screen to add the newly created component.

Proportion [Wt. %] – The user will be able to add numerical value as % of the component to be added in the recipe. A user will not be allowed to enter more than 100% of the component.

The field will be mandatory.

Total – The total Wt. % Proportion will be displayed at the end of the column for all added components.

Proportion [V. %] – The user will be able to add numerical value as % of the component to be added in the recipe. A user will not be allowed to enter more than 100% of the component.

Total – The total V. % Proportion will be displayed at the end of the column for all added components.

The field will be mandatory.

Density – Density is a numerical value. It will be mandatory.

Total – The total density will be displayed at the end of the column for all added components

Type – The Type will be a dropdown. The drop-down will have fixed values.

MP – Checkbox.

MF – Checkbox.

Delete – The users will be able to delete the component line item.

Save – After adding all the mandatory values in the component line item, the users will be able to save the recipe using the save button.

Once the recipe is saved successfully, the recipe will be updated in the recipe list and the user will redirect to the recipe list.





	A confirmation message will be	displayed for the save.
	If users attempt the exit without saving, the system will show a popup to allow users to confirm the exit without saving.	
	Add Injection Molding Button— Clicking on the add injection molding button will redirect the users to the new injection molding page. Once the record is added it will be updated under the recipe.	
	Add Compounding Button- Clicking on the "add compounding" button will redirect the users to the new injection molding page. Once the record is added it will be updated under the recipe.	
	Reference: Wireframe – Create Recipe	
Fields and Validation	Wireframe: New Recipe	
	Recipe Number	Auto-generated
	Product Name*	Text Field
	Compounding data	Text Field
	Additive	Dropdown (Additive Master)
	Main Polymer*	Search & Multi-Select
	Project Number*	Search & Multi-select
	Comment	Text box
	Component Line Items	
	Component Name*	Dropdown
	Proportion [wt.%]*	Numeric
	Proportion [v.%]*	Numeric
	Density	Numeric
	Туре	Dropdown



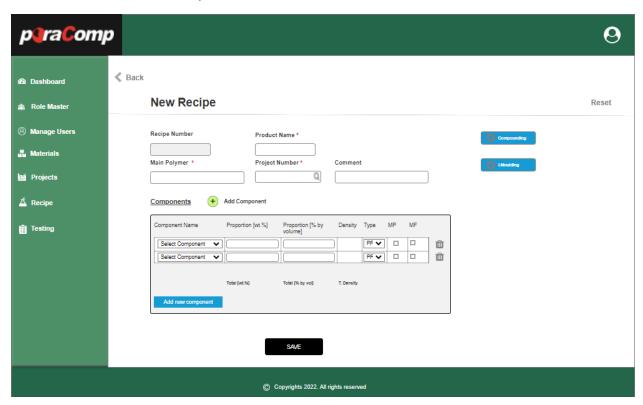


MP	Checkbox
MF	Check
Add new Component	Button
Delete Component	Button
Add Component	Button
Save	Button
Compounding	Button
Injection Molding	Button





Wireframe: Create New Recipe



Add/Edit Injection Molding for recipe

Actors	Admin
Interface	Web
Requirement Definition	Admin will be able to add an injection molding record to the recipe.
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.
Post - Condition	A new injection molding record will be added to the recipe.
Business Rules / Logic	Admin users will have access to the recipe list with creating, read, update and delete functionality. On clicking the "create new recipe" or edit recipe button, the admin will redirect to the create/edit recipe form page.
	Add Injection molding -





Once the recipe record is saved in the system, the admin will be able to add an injection molding record.

The recipe page will have an, "Add injection molding" button. The users will be redirected to the Injection molding screen.

The Injection molding screen will have the below fields.

Project ID – The Project ID will be a search and multi-select option. As the user starts the system will show the matching results. Users will be able to select the search results.

Parameter Set – The parameter set will be automatically generated when a new Injection molding field is created. It will be a non-editable field.

Recipe number – The user will be able to add the recipe number.

Repetition – The user will be able to add/edit the repetition number. Using the "-", and "+" button the users will be able to increase, and decrease the repetition number.

Reference – Checkbox.

Additive – The additive will be a text box.

Pre-treatment – The pre-treatment will have two checkboxes. None and Dry Test. The user will be able to select both or either one.

Drying Temperature – Drying Temperature will be a numeric input box. It will be recorded as degrees Celsius.

Drying time – The duration will be a numeric field. It will be recorded as h.

Residual Moisture – The residual moisture will be a numerical field. It is recorded as %.

Processing Moisture – The processing moisture will be a numerical field.





Not Measured – Check box.

Processing Moisture – The processing moisture will be a text field.

Plasticizing Volume – The Plasticizing volume will be a numerical field. It will be recorded as cm³.

Decompression – The decompression volume will be a numerical field. It will be recorded as cm³.

Switching Point – The switching point will be a numerical field. It will be recorded as cm3.

Holding Pressure – The holding pressure will be a numerical field. It will be recorded as the bar.

Screw speed – The screw speed will be a numerical field. It will be recorded as m/s.

Injection Speed – Injection speed will be a numerical value, it will be recorded as cm3/s.

Injection Pressure – Injection Pressure will be a numerical value. It will be recorded as the bar.

Temperature Zone – The temperature zone will be a numeric text field. It will be recorded in degrees Celsius.

Melt Temperature - The melt temperature will be a numeric text field. It will be recorded in degrees Celsius.

Nozzle Temperature - The nozzle temperature will be a numeric text field. It will be recorded in degrees Celsius.

Mold Temperature - The Mould temperature will be a numeric text field. It will be recorded in degrees Celsius.

Save - Once the user adds/edits the injection molding information, the user will be able to save the entered record.





Once the record is saved, the users will be redirected to the
recipe details screen for the recipe for which the record is added.

The system will display a message, "Injection molding record added" and redirect the user to the update recipe screen.

If users attempt the exit without saving, the system will show a popup to allow users to confirm the exit without saving.

Injection Molding records list

The Injection molding records will be updated under the injection molding table for the respective recipe.

The users will be able to view and edit and delete the injection molding for the recipe.

Reference: Wireframe – Edit Recipe, Injection Molding.

Wireframe: New Injection Molding

Product ID*	Search and Multi-select
Parameter Set	Auto-generated, Read-only
Recipe Number	Dropdown
Repetition	Numeric, Increase/Decrease option.
Reference Additive	Text Box
Pre-treatment	Checkbox, None, and Dry Test
Drying Temperature	Numeric
Drying Time	Numeric
Residual Moisture	Numeric
Not Measured	Checkbox



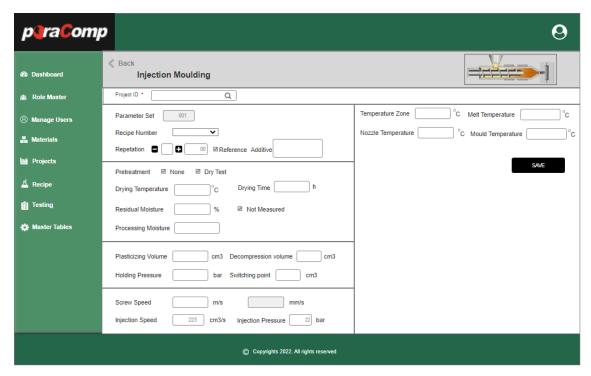


Processing Moisture	Numeric
Plasticizing Volume	Numeric
Decompression Volume	Numeric
Holding Pressure	Numeric
Back Pressure	Numeric
Switching Point	Numeric
Screw Speed	Numeric
Injection Speed	Numeric
Injection Pressure	Numeric
Temperature Zone	Numeric
Extra Feed Section	Numeric
Melt Temperature	Numeric
Nozzle Temperature	Numeric
Mold Temperature	Numeric

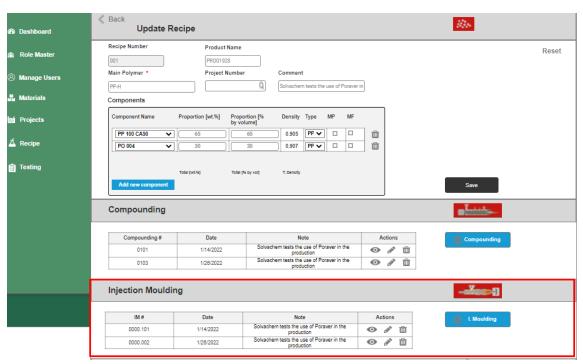




Wireframe: New/Edit Injection molding



Wireframe: Injection molding records







Add/Edit compounding for recipe

Actors	Admin	
Interface	Web	
Requirement Definition	Admin will be able to add compounding records to the recipe.	
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.	
Post - Condition	A new compounding record will be added to the recipe.	
Business Rules / Logic	Admin users will have access to the recipe list with create, read, update and delete functionality. On clicking the "create new recipe" or edit recipe button, the admin will redirect to the create/edit recipe form page. The admin will be able to view create/edit/view/delete the compounding record for the recipe.	
	Add compounding -	
	Once the recipe record is saved in the system, the admin will be able to add a compounding record.	
	The recipe page will have an, "Add compounding" button. The users will be redirected to the compounding screen.	
	The compounding screen will have the below fields.	
	Compounding number – The compounding number will be a numeric field.	
	Parameter Set – The parameter set will be a numeric read-only field.	
	Date – This will be a date field with date format as dd/mm/yyyy.	
	Note – A note will be a text box.	
	Repetition – A repetition will be a numeric field where the users will have an option to increase/decrease the number.	





Pre-treatment – The pre-treatment will be checkboxes where users will be able to check the box. None or Drying or both.

Temperature – The temperature will be a numerical field with the temperature recorded as degrees Celsius.

Duration – The duration will be a numerical field.

Residual Moisture – The residual moisture will be a numerical field with moisture recorded as %.

Not Measured – Not measured will be a checkbox.

Dosage

The dosage will consist of a table.

Component Name – On adding a new component, the users will be able to add components as line items in the dosage table. Users will select a component from the dropdown.

Share – The share will be a numerical value where users will add component share in percentage.

MF – MF will be a checkbox.

 $2^{nd} - 2^{ND}$ will be a checkbox.

SF – SF will be a checkbox.

A, B, C, D, E, F – will be a checkbox.

Add Component button – Using the add component button, the users will be able to add a new line item component.

Delete – The delete button will allow the users to delete the line item.

Total % - The total % will be calculated on the basis of the total % for all the components.





Note: The users will not be allowed to add a component with a total component % > 100. The system will throw an error "Component percentage exceeding 100%.

Speed Side Feeder 1 – The side feeder will be a numeric field that will be recorded as RPM.

Speed Side Feeder 2 – The side feeder will be a numeric field that will be recorded as RPM.

Upload Screwconfig – The users will be able to upload a document for screw configuration.

Temperature Profile – The users will be able to add the temperature profile in multiple fields.

Screw Config – This will have a checkbox option where users will be able to select the checkbox options as standard and/or Modified.

Degassing - This will have a checkbox option where users will be able to select the checkbox options as standard and/or Vacuum and/or None and/or FET.

Screw Speed – This will be a numerical field that will be recorded as RPM.

Torque – This will be a numerical field where the value will be recorded in %.

Pressure – The pressure will be a numerical value that will be recorded as the bar.

Total Output – Total Output will be a numerical field where the value will be recorded as Kg/h.

Granulator – The Granulator will be a numerical field that will be recorded as RPM.

Bulk density – Bulk density will be a numerical field that will be recorded as g/l.





Cooling section – The cooling section will be a numerical value that will be recorded in CM.		
Temperature Water Bath – There will be three fields that will accept numerical values stored as degrees Celsius.		
Melt Pump – The melt pump wi	Melt Pump – The melt pump will be a checkbox.	
Underwater Pelletizer – This will be a checkbox.		
Nozzle plate – This will be a checkbox.		
Notes – Notes will be a Text box.		
Premix – The premix will be a checkbox.		
Premix Notes - This will be a text box.		
Save Button – The Save button will allow the users to save the		
compounding record in the system.		
The system will display a message, "Compounding record added" and redirect the user to the update recipe screen.		
If the user attempts to exit without saving the record, the system will show a popup alerting the user to exit without saving.		
Wireframe: New Compounding		
Compounding Number	Auto-generated	
Parameter Set	Numeric	
Date	Date	
Notes	Text Box	
Repetition	Numeric, Increase/Decrease option	
Pre-treatment	Checkbox, None, and Drying	





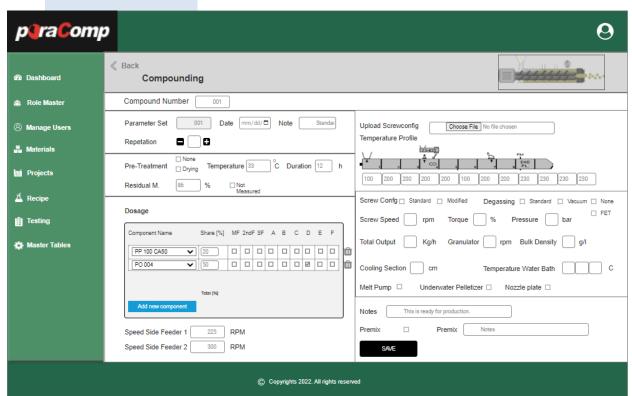
Temperature	Numeric
Duration	Numeric
Residual Moisture	Numeric
Not Measured	Checkbox
Dosage Table	
Component Name	Selection
Share	Numeric
MF, 2ndF, SF, A, B, C, D, E, F	Checkbox
Add Component	Button
Delete	Button
Speed Side Feeder 1	Numeric
Speed Side Feeder 2	Numeric
Upload Screw config	File Upload
Temperature Profile	Numeric, 13 Fields
Screw Config	Checkbox, Standard and/or Modified
Degassing	Checkbox, Standard, Vacuum, None
Screw Speed	Numeric
TORQUE	Numeric
Pressure	Numeric
Total Output	Numeric
Granulator	Numeric





Bulk Density	Numeric
Cooling Section	Numeric
Temperature Water Bath	Numeric
Melt Pump	Checkbox
Under Water pelletiser	Checkbox
Nozzle plate	Checkbox
Notes	Text Box
Premix	Checkbox
Premix Notes	Text Box
Save	Button

Wireframe: Compounding







Test List

Actors	Admin	
Interface	Web	
Requirement	Admin will be able to view the list of Tests.	
Definition		
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.	
Post - Condition	Admin will be able to access the Test list and perform available activities.	
Business Rules / Logic	Admin user has access to Test list with create, read, update and delete functionality. The recipe list table includes the following columns: - Product Name - Recipe Number The recipe number is auto-generated by the system once the recipe is created. Users will be able to search the recipe in the column Polymer Type dropdown Recorded from Polymer Type master The Main Polymer record is added to the recipe creation screen Mechanical Properties - General Properties - Temperature Properties - Flammability Properties - Electrical Properties - Electrical Properties - With the click of "Add New Test Data", Admin will redirect to create a new Test screen. Options With the click of the "back" button, can navigate back to the dashboard screen.	



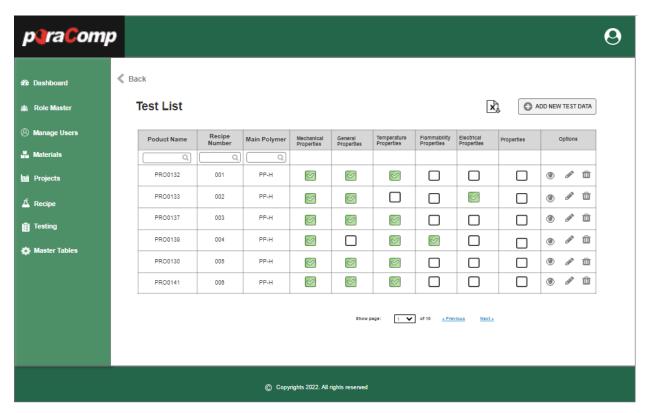


	With the click of the "Edit" button, under the action column in the table, the admin will land on the respective test edit screen. With the click of the "Delete" button, under the options column in the table, the admin will be able to delete the test. With the click of the "View" button, the admin will be able to open the test data in the view mode. With the click of the "Export" button, the admin will be able to export the recipe data in excel format. The users will be able to select all or multiple rows to be exported in the excel sheet. The users will be able to filter the list column with the multiselect option. The user will type the search options and enter them, the system will display the rows with the matching data.	
	The list will have a pagination option to view more data rows.	
Fields and Validation	Wireframe: Test List	
	Add New Test	Button
	Edit	Button
	Delete	Button
	View	Button
	Export	Button
	Pagination - Next	Button
	Pagination - Previous	Button





Wireframe: Test List







Create/Edit Test

Actors	Admin	
Interface	Web	
Requirement Definition	Admin will be able to create a new test & edit the test in the system.	
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.	
Post - Condition	Admin will be able to access the Testing module and create a new test and update the test.	
Business Rules / Logic	Admin user has access to the test list with create, read, update and delete functionality. On clicking the "create a new test" button, the admin will redirect to the create test form page. Users can redirect to the edit test screen by clicking the "edit" button in the recipe column.	
	The create/edit test form will consist below fields – Product Name – The Product name will be a name given to a recipe. It will be a mandatory text field.	
	Recipe Number – The recipe number will be captured from the project name automatically.	
	Comment will be a text field – The matrix polymer will be a mandatory text field.	
	Comment - It will be free text field to add a comment. It will be non-mandatory.	
	Mechanical properties	
	Every mechanical properties will have two numeric input fields, d.a.m and conditioned.	
	 Tensile modulus (1 mm/min ISO 527-2) Stress at yield(50 mm/min ISO 527-2) Strain at yield(50 mm/min ISO 527-2) Strain at break(50 mm/min ISO 527-2) Flexural modulus(2 mm/min ISO 178) 	





- Flexural strength(2 mm/min | ISO 178)
- Flexural strain at break(2 mm/min | ISO 178)
- Charpy impact strength(23°C | ISO 179-1/1eU)
- Charpy impact strength(-30°C | ISO 179-1/1eU)
- Charpy notched impact strength(23°C | ISO 179-1/1eA)
- Charpy notched impact strength(-30°C | ISO 179-1/1eA)
- Izod-notched impact strength(23°C | ISO 180/1A)
- Izod-notched impact strength(-20°C | ISO 180/1A)
- Izod-notched impact strength(-40°C | ISO 180/1A)
- Shore D Hardness(23°C | DIN 53 505)

Temperature properties

Every Temperature property will have a single field as a text input box.

- The temperature of deflection under load HDT/A(1,8 MPa | ISO 75)
- Temperature of deflection under load HDT/B(0,45 MPa | ISO 75)
- Melting temperature(DSC, 10K/min | DIN EN ISO 11357-3)
- Coefficients of linear thermal expansion, parallel(23°C bis 80°C | ISO 11359-1/2)
- Coefficients of linear thermal expansion, transverse(23°C bis 80°C | ISO 11359-1/2)

Flammability properties

Every flammability property will have a single field as a text input box.

- Burning rate(UL 94), 1,6mm Wall thickness
- GWFI(IEC 60695-2-12) 1,6mm Wall thickness
- GWIT(IEC 60695-2-13) 1,6mm Wall thickness
- Burning rate (<100 mm/min)(> 1 mm Thickness | FMVSS 302)

General Properties





Every flammability property will have a single field with a text input box.

- Density(23°C | ISO 1183)
- Humidity absorption(70°C, 62% r.H. | ISO 1110)
- Molding shrinkage(flow | ISO 294-4)
- Molding shrinkage(transverse | ISO 294-4)
- MFR
- MVR

Electrical Properties

Every electrical property will have a single field as a text input box.

- Volume resistivity(DIN EN 62631-3-1)
- Volume resistivity(DIN EN 62631-3-1)
- Surface resistivity(DIN EN 62631-3-2)
- Comparative tracking index(Test liquid A | IEC 60112)

Properties

Every below property will have a checkbox.

- Sustainable
- flame retardant
- heat stabilized 130
- heat stabilized 160
- heat stabilized 230
- hydrolysis/ chemically stabilized
- laser transparent
- laser markable
- low warpage
- reduced density
- reduced moisture
- electrically neutral
- UV-stabilized
- surface-modified
- adhesion modified
- Tribological modified
- easy flow





- nucleated
- process improved
- fluid injection (GIT/WIT/FIT)
- recycled content
- 3D printing/ additive manufacturing

Notes:

- 1. Once the tests are created, the tests are saved for the respective property for the recipe.
- 2. If any test is edited, the system will show a message that the test is updated successfully.
- 3. The users will have an option (button) to choose whether to publish the data on the technical datasheet. If selected "Yes" the data will be visible on the recipe details screen on the dashboard and the PDF. Users will also be able to unpublish the data.

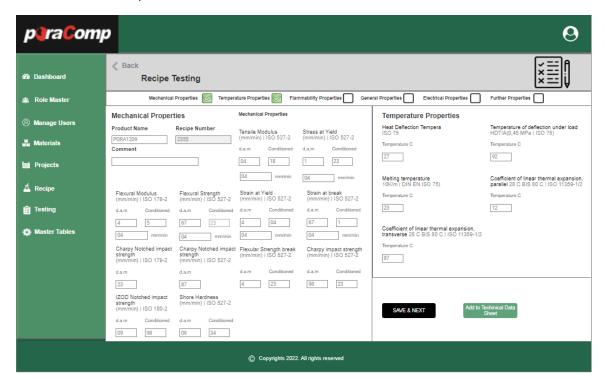
With the click of the "back" button, users will be able to navigate back to the previous screen. (Update recipe screen)

Reference: Wireframe – Create/Edit Recipe 1, Create/Edit Recipe 2.

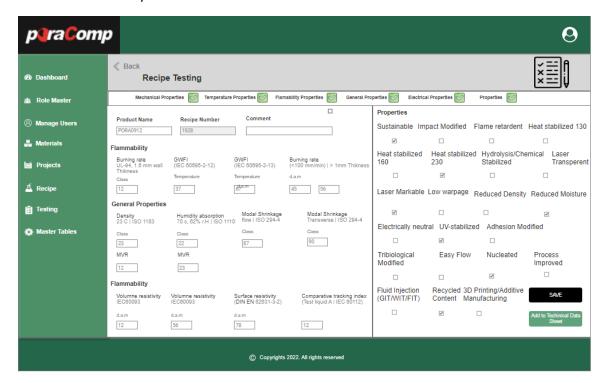




Wireframe: Create/Edit - 1



Wireframe: Create/Edit - 2







Master Tables

Actors	Admin	
Interface	Web	
Requirement Definition	Admin will be able to add/update values in the master table.	
Pre - Condition	Admin has logged in using a valid email ID/user ID and password.	
Post - Condition	Admin will be able to access the Master Table module and add/edit/delete master table values.	
Business Rules / Logic	Admin user has access the master table list with update functionality. Users will redirect to the edit master selected by clicking the "edit" button in the Action column.	
	Manufacturer Master	
	 The user will be able to add/update/delete values for the manufacturer. On clicking the + Add Manufacturer button, the user will redirect to the new Manufacturer screen. 	
	Supplier Master	
	 The user will be able to add/update/delete values for the supplier. On clicking the + Add supplier button, the user will redirect to the new supplier screen. 	
	Main Polymer Master	
	 The user will be able to add/update/delete values for the polymer. On clicking the + Add Polymer button, the user will redirect to the new polymer screen. 	
	Additive Master	
	The user will be able to add/update/delete values for the	





	Additive. On clicking the + Add Polymer button, the user will redirect to the new Additive screen.		
	The users will be shown a message on the screen for a successful update of the values in the master.		
	The users will be prompted an alert to confirm delete in case they select to delete a value in the master.		
	If the users attempts to exit without saving the records in the create /edit master form, the users will be displayed a message to confirm exit without Saving.		
Fields and Validation	Wireframe: Master Table (List)		
	Table Name	Column	
	Actions: Edit	Button	
	View	Button	
	Pagination Options		
	Wireframe: Contacts Master (List)		
	Contact Name Column		
	Contact Type Column		
	Action: View, Edit, Delete Button		
	Add new Contact	Button	
	Wireframe: Contact Form		
	Contact Type	Radio Button	
	Name	Text Field	
	Address: Line 1	Text Field	
	Address: Line 2	Text Field	



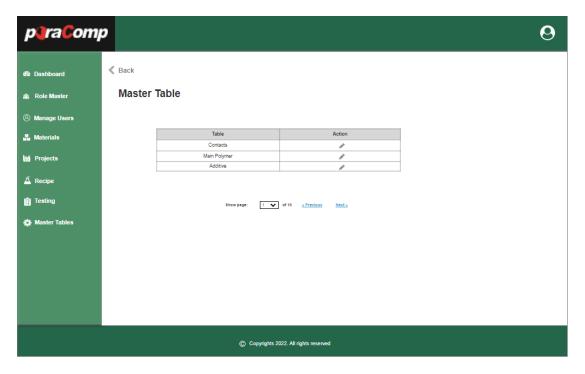


City	Text Field
State	Text Field
ZIP	Numeric Field
Phone	Numeric Field
Email	Text Field
Save	Button
Wireframe: Main Polymer List	
Type Name	Column
Action: Edit	Button
Add new polymer	Button
Pagination	
Wireframe: New Main Polymer	
Name	Text Field
Save	Button
Wireframe: Additive List	
Additive Name	Column
Action: Edit	Button
Add Additive polymer	Button
Pagination	
Wireframe: New Additive	
Name	Text Field
Save	Button

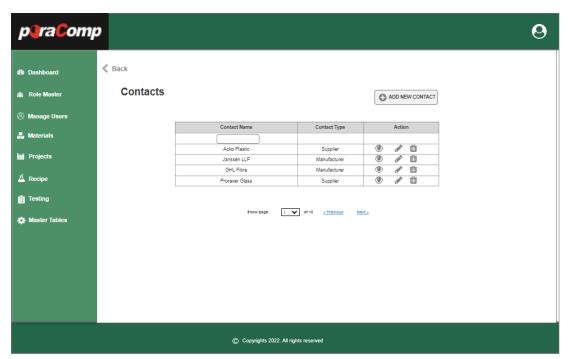




Wireframe: Master Table List



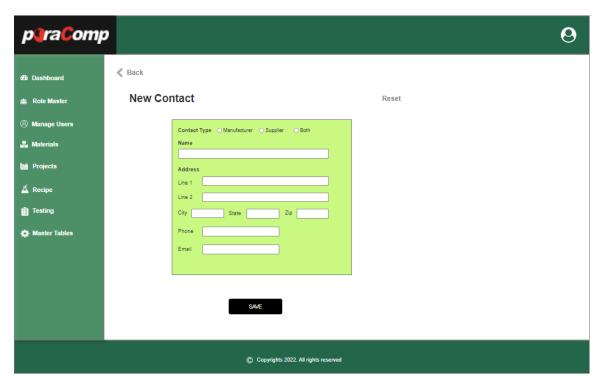
Wireframe: Contact Master



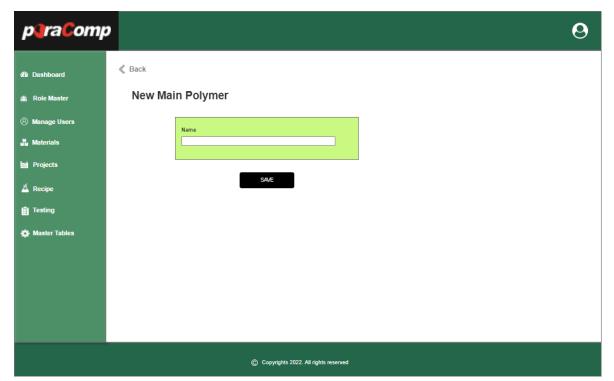




Wireframe: Edit Contact Screen



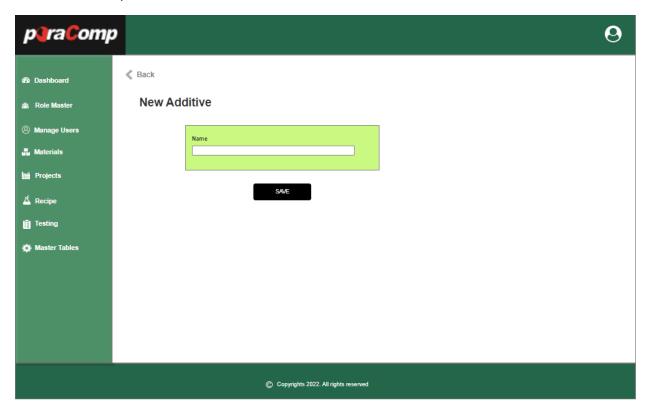
Wireframe: Add/Edit Main Polymer







Wireframe: Add/Edit Additive







Non-Functional Requirement:

NFA - Non-Functional/ Aspects & Features	Our Implementation	
Security		
Web application will be follow free from following vulnerabilities.	 Broken Access Control Injection SSRF Vulnerable and outdated components Password length will be minimum 8 characters. Password will be expired in 90 calendar days. Password will not be identical to the previous three (3) passwords. Password will not be transmitted in the clear or plaintext outside the secure location. 	
Password Policies	 Password will not be displayed when entered. Only authorize person will reset the password. 	
Login and Accessbility		
	 Access permissions for application data may only be changed by the system's data administrator. Create, Read, Update, and Delete (CRUD) levels. Users will able to access the application depends on access level of users 	
Access permissions	level of users	
Performance	 The web app should be scalable to handle any size of data load. The web app should function without any lags. 	

Operating Environment:

The proposed web portal will be compatible with following browser.

Browser	Version	Application Compatibility
Internet Explorer	IE 9.X or onwards	Windows & Linux
Mozilla Firefox	Firefox 25	Windows & Linux
Google Chrome	Google Chrome 30	Windows & Linux
Safari	Safari 5.0 & above	Mac OS

• Responsive/Adaptive Website





For adaptive design, the minimum screen size the website will be built to support is 320px by 480px and the maximum is 1920px by 1080px.

Assumption & Dependencies:

- Web App will support only English language only.
- Web App will work in online mode only.
- Data collected from the forms in the application will be ready to be used by APIs to be integrated with third party systems.
- As per the requirement, only Login, Password reset, Dashboard and recipe details page will be adaptive to mobile devices.
- We haven't considered any special effects and animation for development.
- The client will provide and bear the cost of the email gateway to be integrated. We are considering one email gateway with the proposed application.
- Hosting infrastructure to be maintained by the client.
- We have considered manual testing for the proposed application and the test cases will be submitted on closure
- Any new change/feature requirement which is not mentioned in the document will be considered as a change request.

External Interfaces:

Email Gateway

Technical Details:

Technology Stack

- Frontend React JS
- Backend Node JS
- Database MySQL, Redis
- Cloud AWS