Chemical App Documentation

Sample Management

When dealing with a single commodity, its unique qualities are what set it apart from others. In such cases, differentiating between suppliers without established brands typically involves requesting samples. This is especially true in the chemical industry, where you assess concentration, while in the minerals sector, purity is key. For agricultural commodities, moisture content is critical, as it can influence pricing. Therefore, you can't effectively compare prices between suppliers without considering these factors—concentration, purity, and moisture content—since they significantly impact the overall value of the commodity.

Samples Management
When price can vary based on quality of Material

Quality Inspection

Register Sample from Customer   01

Create Counter Sample in Lab   02

Quality Inspection

Get RMC as per Dilution   03

Quality Inspection

04   Register Supplier Sample

Update Price

Customer Side
If item is made as per customer quality, manager their samples

Supplier Side
Store samples and quality details, update supplier quoted price.

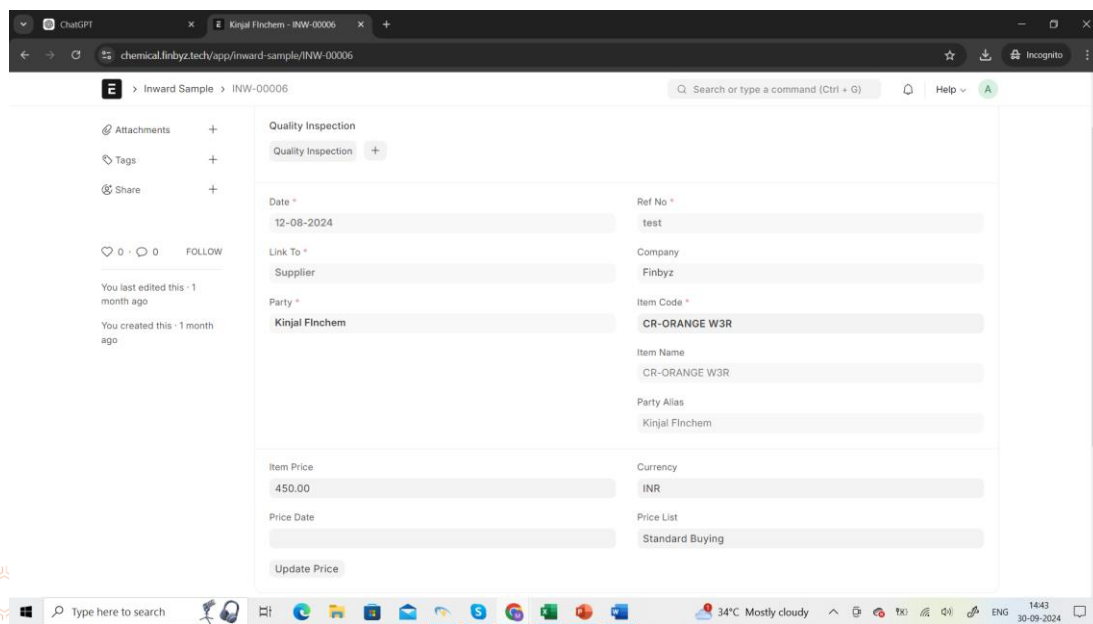FinByz | **F** CERTIFIED Partner

Inward Sample

All samples are recorded in an inward sample register. When adding a sample, make sure to include details like the reference number and the customer or supplier's name. If the sample passes your quality tests, you'll check the price that the supplier is quoting for that material. You can then update the price in your system by clicking "update," and it will reflect in your price list.

You can also receive samples from customers who want you to supply a similar quality. Additionally, if a supplier provides a sample that meets your needs, you can decide to purchase from them.

Steps to add Inward Sample:

1. Open Inward Sample List
2. Click on add Inward Sample
3. Add the details

Outward Sample

Outward samples are those sent to the lab for testing. The team can add new outward samples and link them to the corresponding inward samples that were received. Then, these samples will be tested in the lab.

Steps to add Outward Sample:

1. Open Outward Sample List
2. Click on add Outward Sample
3. Add the details and link it to the Inward sample against which this outward sample is created.
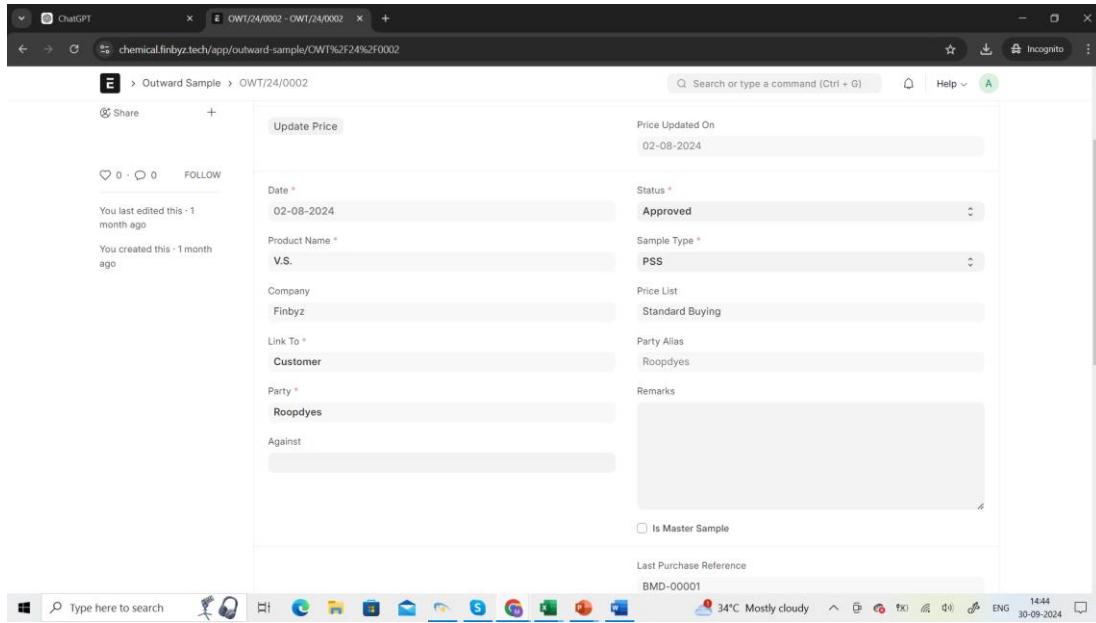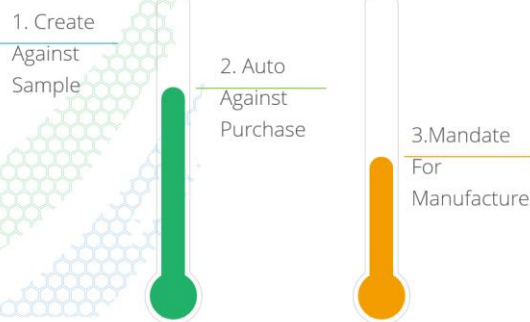
Quality Inspection

Quality checks are essential at every stage. ERPNext automatically includes quality inspections during the purchase receipt, delivery note submission, and in-process quality checks. We have also enhanced the system by adding multiple types of quality inspections for greater flexibility.
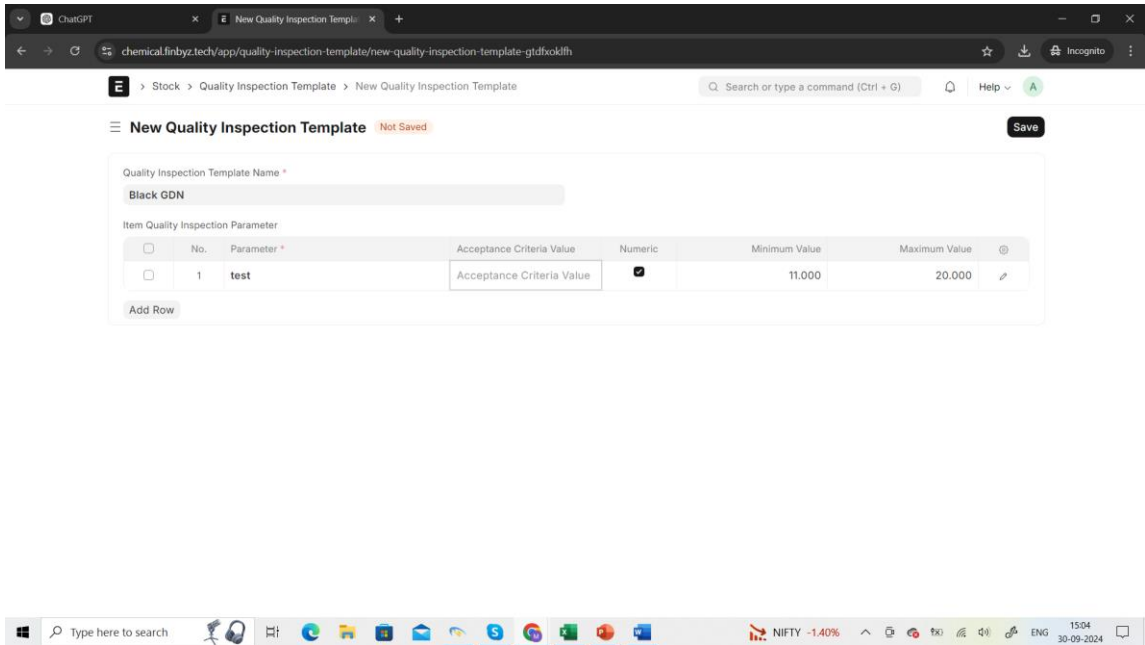

Simplified Quality Inspection
ERPNext makes it all simple to configure

1. Create Against Sample
2. Auto Against Purchase
3. Mandate For Manufacture

Steps to add Quality Inspection Template:

1. Add the Inspection type
2. Add the Reference type
3. Add Parameters

New features

1. At the time of Quality Inspection, as per the Reading value added, the quality inspection is accepted or rejected
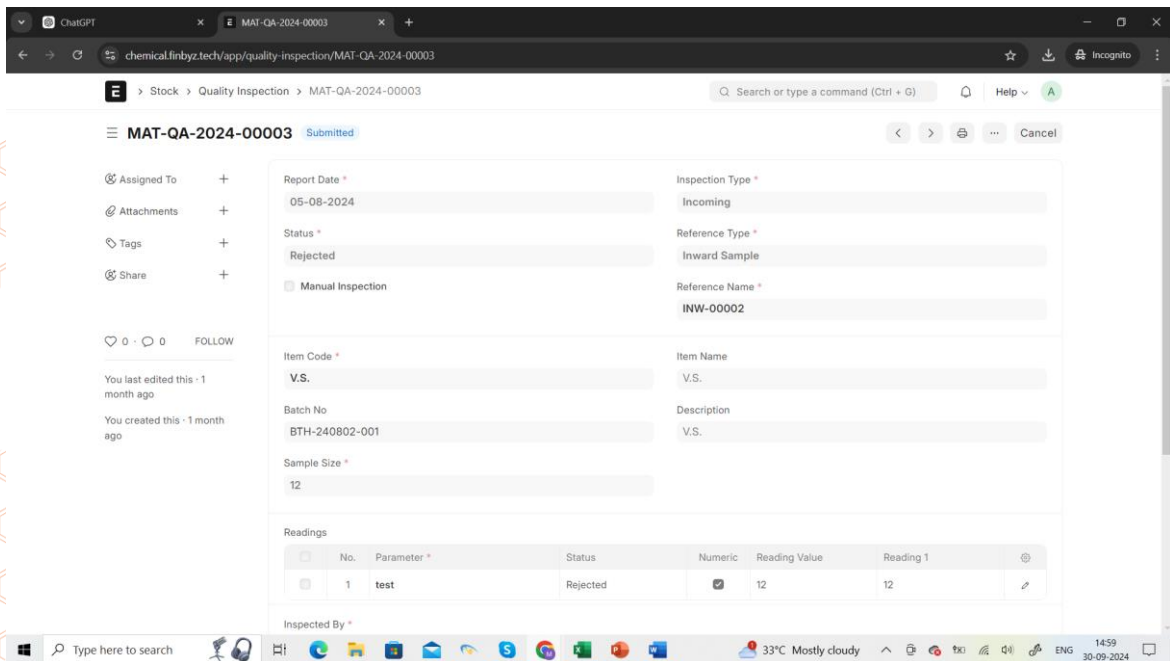

2. Now, at the time of Purchase Receipt/Delivery Note submission, the acceptance criteria added in the Quality Inspection will be automatically added into the batch which will be generated for this particular item

3. Quality inspection is optional in manufacturing. To accommodate this, we added a checkbox in the Bill of Materials (BOM) that allows users to

choose whether they want a quality inspection before finalizing the work order
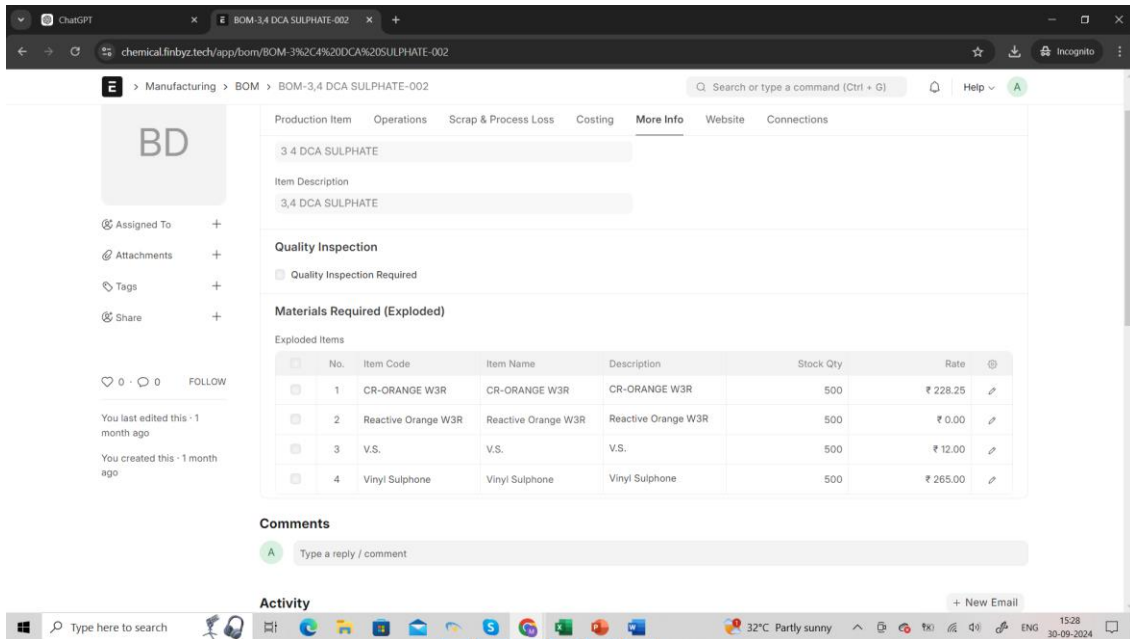
Master Sample

Now, Once our lab-created counter sample is approved, we will mark it as approved and have the option to check a box for "Master Sample." This designation means that all future pricing for this customer will be based on the Master Sample. While I may send multiple samples throughout the process, I want one specific sample to serve as the benchmark for all future shipments to this customer. This ensures that I consistently deliver the required quality, quoting prices based on the customer's specific quality needs rather than my standard items.
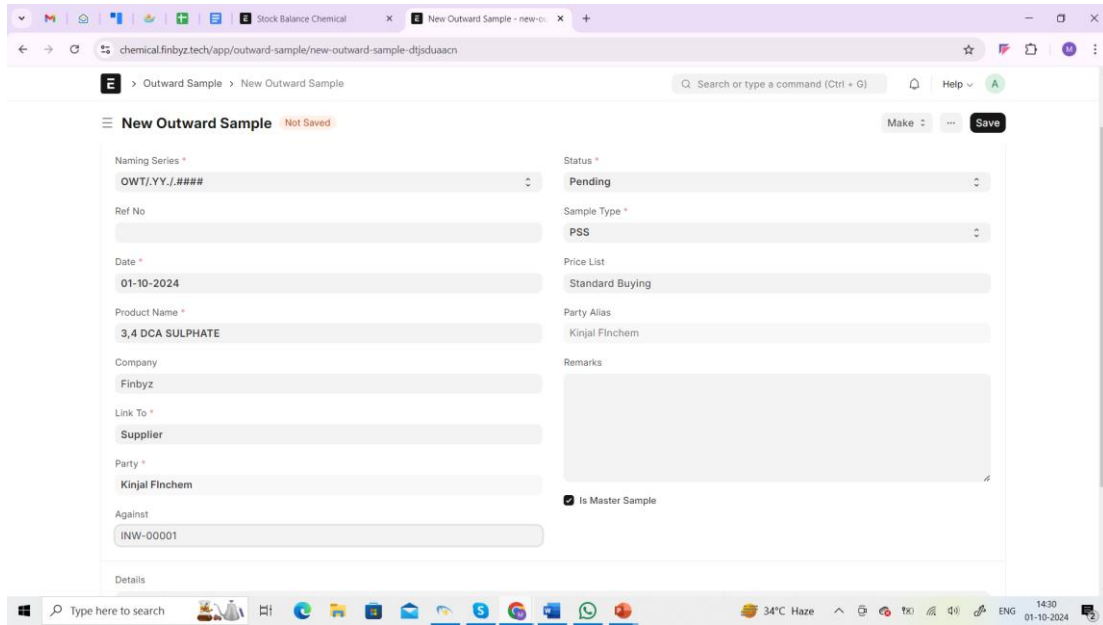
Quotation

After the outward sample is approved, the next step is to quote to the customer which can be done using Quotation document
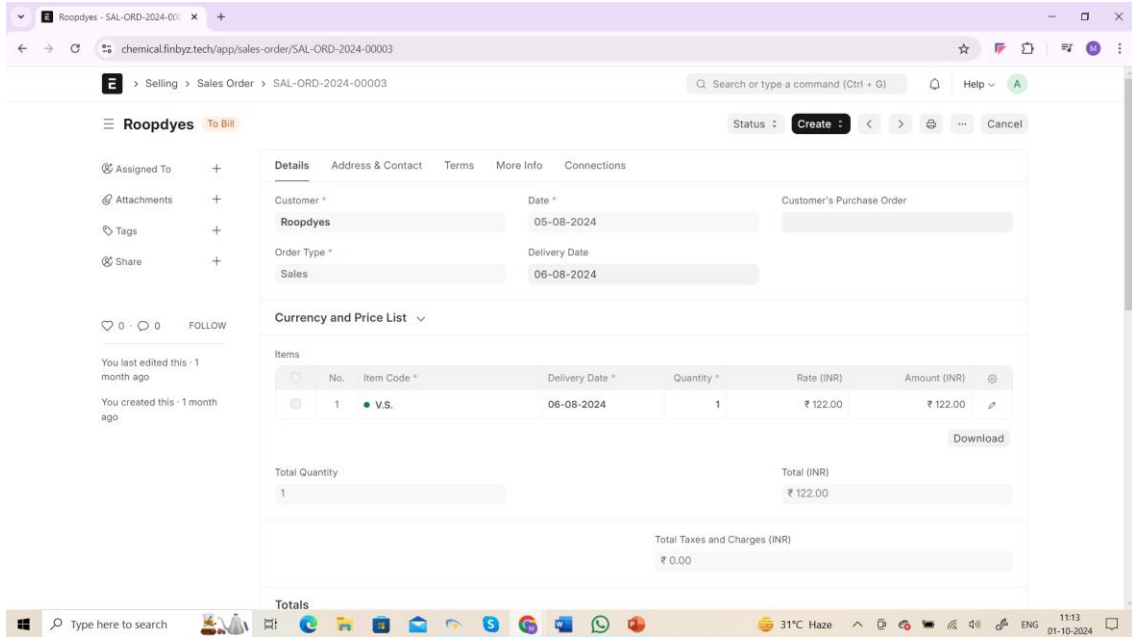
Steps:

1. The data will be automatically fetched from the Outward Sample, just update other details regarding pricing and submit the document
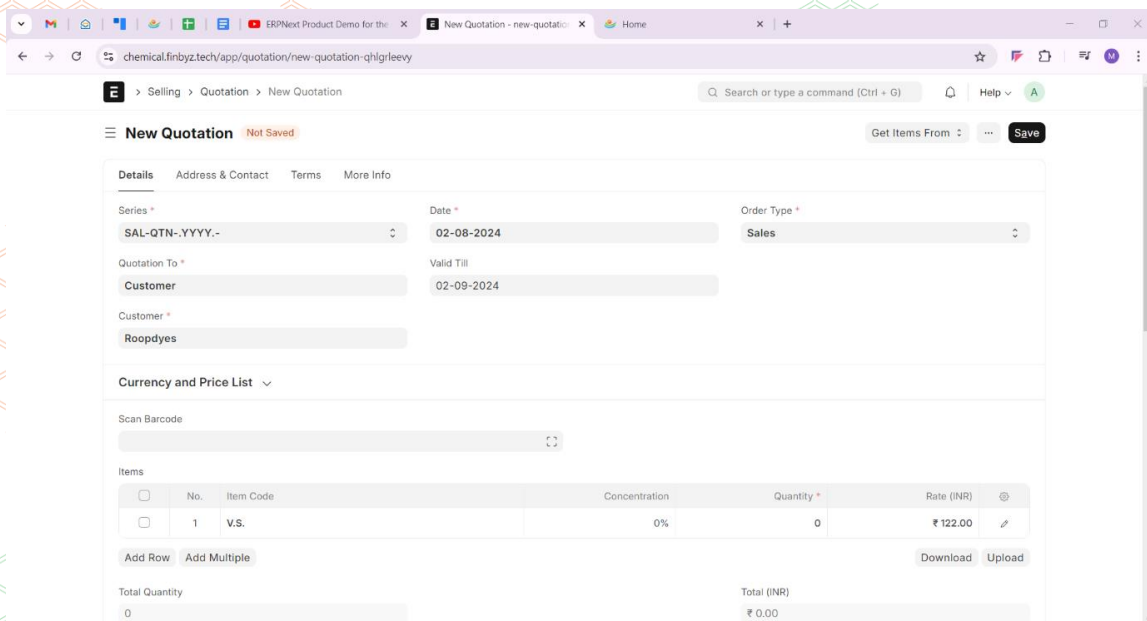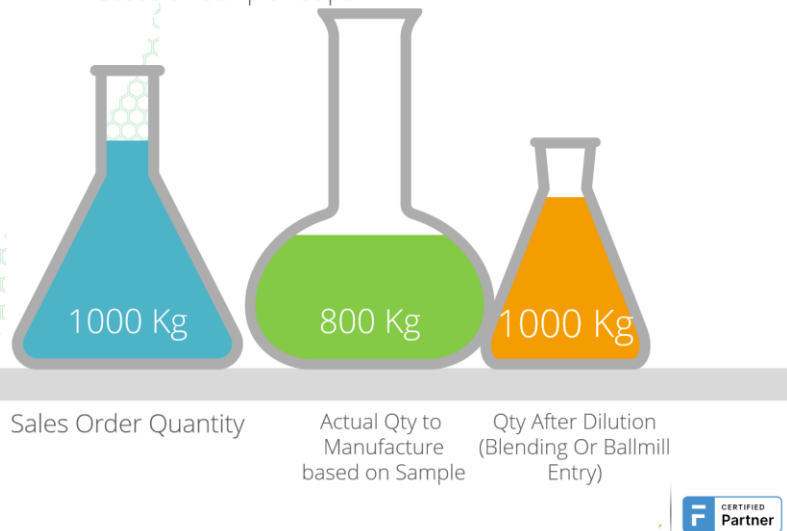

Sales Order

After submitting the quotation, the next step is to submit the Sales Order

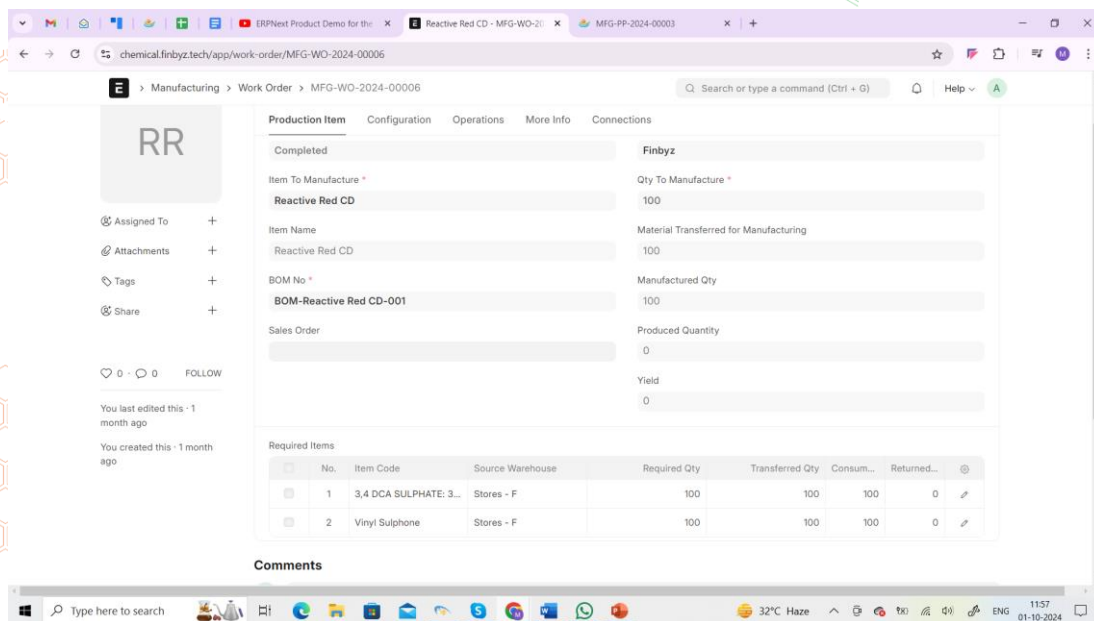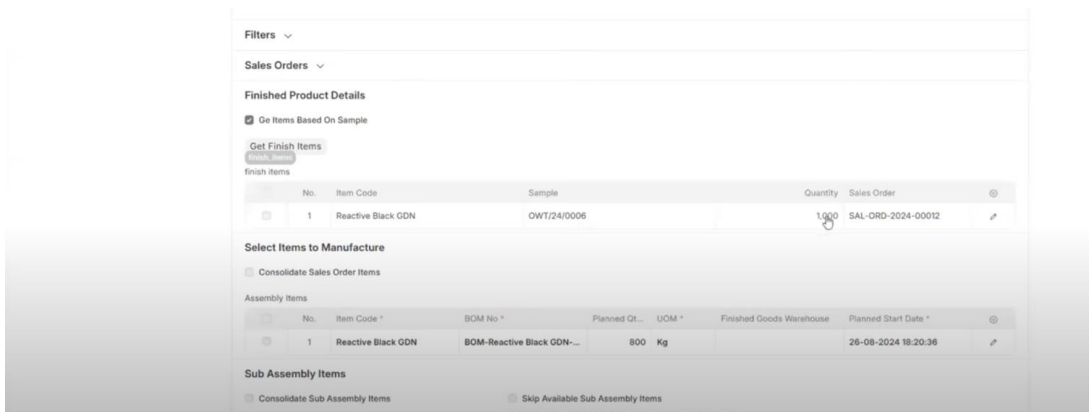# Production Plan

Production Management
Based on Sample Recipe

Use Sample dilution or recipe for Production Planning

1000 Kg — Sales Order Quantity

800 Kg — Actual Qty to Manufacture based on Sample

1000 Kg — Qty After Dilution (Blending Or Ballmill Entry)

The production plan involves planning manufacturing based on existing sales orders. Typically, if you receive a sales order for 1,000 kg, you would plan to produce that amount. However, in this case, we need to deliver only 80% concentration, with the remaining component being salt. Therefore, we will only require 800 kg instead of the full 1,000 kg.

When creating the production plan, the details from the sales order will initially show 1,000 kg. However, once I select the "Get items based on sample" checkbox, it will adjust to reflect only 800 kg. Consequently, the work order will be generated for just 800 kg.

We have already created a Bill of Materials (BOM) for this, so the necessary raw materials are automatically retrieved. After placing the work order, the transfer of materials occurs, final consumption is recorded, and the final output is captured accordingly.

New features

1. We are calculating the yield, which refers to the output generated relative to the raw materials used. A higher yield indicates a more efficient production process.

2. We also track the packaging size and the number of packages within each batch, along with their concentration.

3. The system will compute the total cost based on the most recent prices of the raw materials at which they were bought.

> Manufacturing › Work Order › MFG-WO-2024-00013-1   Q Search or type a command (Ctrl + G)
>
> Letter Head
> finbyz
>
> **FinByz** Tech
>
> **Manufactured: Reactive Black GDN**
>
> **Raw Material Costs**
>
> | No | Raw Material | Lot No | Quantity | Rate | Amount |
> |----|--------------|--------|----------|------|--------|
> | 1 | Vinyl Sulphone (V.S.) | - | 2479.11 | ₹ 265.00 | ₹ 6,56,964.42 |
> | 2 | SULPHURIC ACID | - | 706.67 | ₹ 165.00 | ₹ 1,16,600.06 |
> | 3 | SODIUM NITRITE | - | 848.0 | ₹ 200.00 | ₹ 1,69,600.00 |
> | 4 | Dispersing Agent | - | 22.22 | ₹ 95.00 | ₹ 2,111.09 |
> | 5 | H. Acid | - | 1422.22 | ₹ 385.00 | ₹ 5,47,555.47 |
> | 6 | S.L.100 | - | 66.67 | ₹ 115.00 | ₹ 7,666.70 |
> | 7 | CALCIUM CAR... E | - | 8000.0 | ₹ 12.00 | ₹ 96,000.00 |
> | | RMC | | | | ₹ 15,96,497.74 |
>
> **Additional Costs**
>
> | | Total Additio... | | | | |
>
> | Reactive Black GDN | | GDN/08/03 | 800.0 | ₹ 1,995.62 | ₹ 15,96,497.74 |
> | Yield: 0.32 | | | | | |
> | 25Kg × 32 = 800.0Kg | | | | | |

Blending 2 or more chemicals

Blending 2 or more chemicals
Ball Mill Datasheet

Why not use BOM?
Unable to define fix formula as The dilution or blending is based on purity/concentration of Material in hand.

Material A   Material B
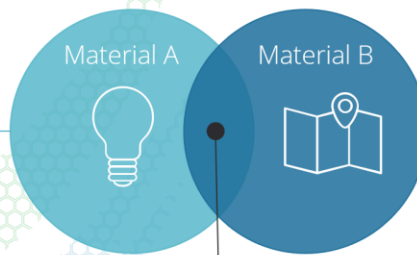
Why not Repack Entry?
Technically you can, but not easy to use for production user. And you get extra information on process loss, multiple packaging.

Mostly used to achieve specific Concentration/Purity

After receiving 800 kg of the finished product, we need to dilute the solution as we did during the outward sample process, but this time on a larger scale. While we could use the Bill of Materials (BOM), the concentration can vary, sometimes being 105% or 95%. This variability means that relying on the BOM isn't practical, as the dilution will depend on the actual quality of the material produced, which may not always be 100%.

An alternative approach could be to use repack entries, but this method can be complex since it requires manual input for both input and output. Additionally, losses during the process—such as vaporization or spillage—mean that achieving a full 100% yield is often not possible; we might only get 99%. Capturing these process losses isn't feasible with standard stock entries.

To address this, we've created a separate document called the Ballmill Data Sheet. The ball mill is the instrument used for blending, common across various industries. In this document, operators will record the mixing of materials and relevant data in the system.

Steps:

1. Add the qty in the ballmill data sheet
2. Select the Sample for which it is produced
3. Once the sample is selected, the qty required will automatically be fetched
4. Select the batch

Now, as per the requested qty the system makes the calculation and automatically captures the handling loss
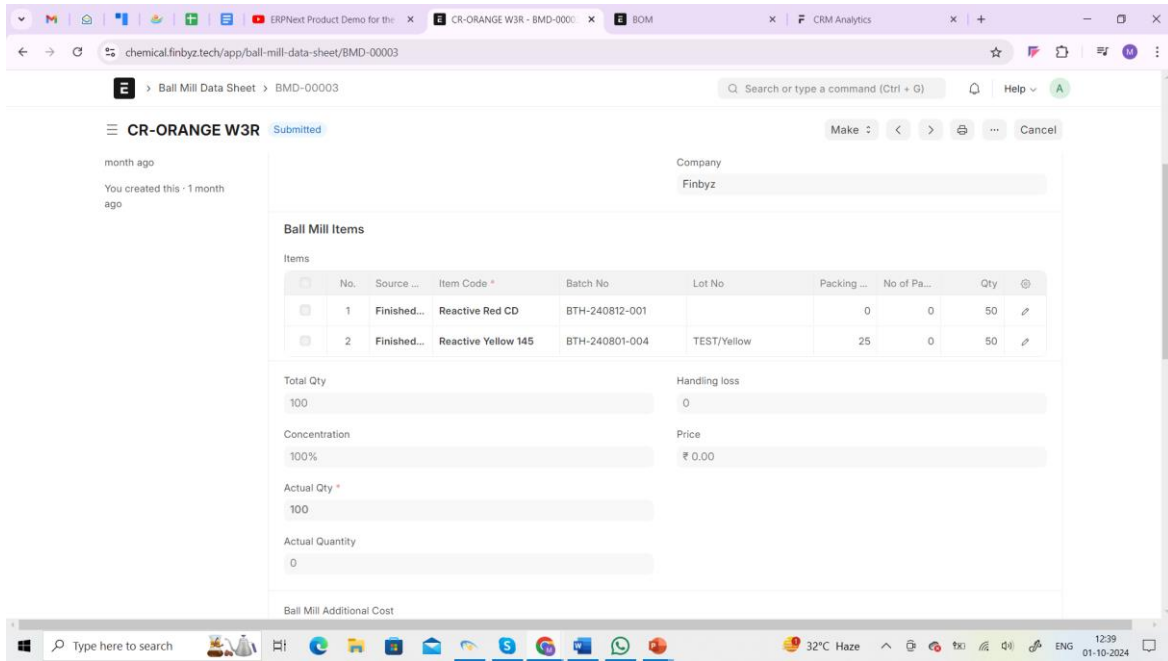
Multiple Finished Items

BOM Multiple Finish Items
When Secondary item is not scrap but has roughly similar value

01	Manage Quantity Ratio	70:30
02	Manage Cost Ratio	40:60
03	Make Both Items Equal Cost	1:1
04	Calculate Yield	86%
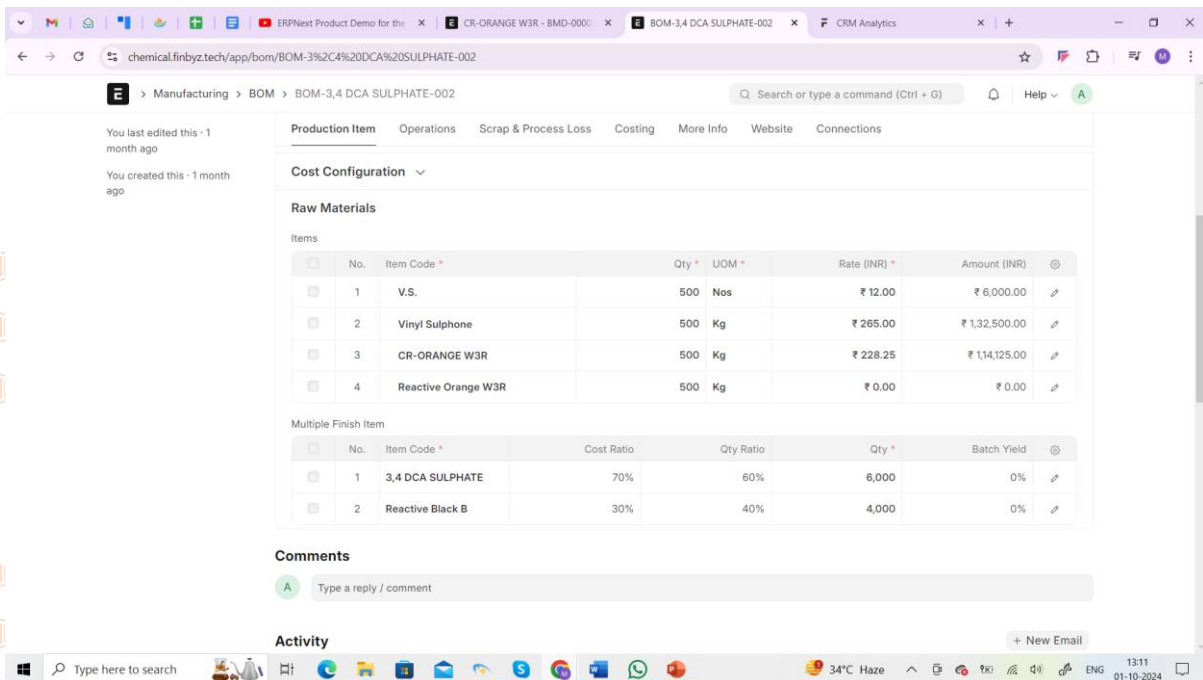
We've also added features to better handle multiple outputs in the Bill of Materials (BOM). Normally, ERP systems only allow for one finished product, treating everything else as scrap. In reality, when producing two chemicals, both can be finished products with different quantities and costs. This issue isn't limited to chemicals; it can apply to other industries as well.

For example, consider cashews: they come in different sizes, which represent different qualities. One input can lead to multiple outputs, and sometimes there can be multiple inputs and outputs, each with its own cost. Larger cashews might be 20% of the total quantity but cost more than smaller ones. This means we need a way to define specific costs and quantity ratios for different products.

To solve this, we've introduced a checkbox in the BOM for "multiple items." If this box is checked, you can add multiple finished products, specifying their cost ratios, quantity ratios, and yields. The system will automatically calculate the valuation cost for each.

Additionally, if the costs for the finished items are the same, you can simply check the "Equal cost ratio" box. In this case, all quantities received will carry the same cost.

We have also created a field Based On in BOM itself to which raw material the yield will be calculated

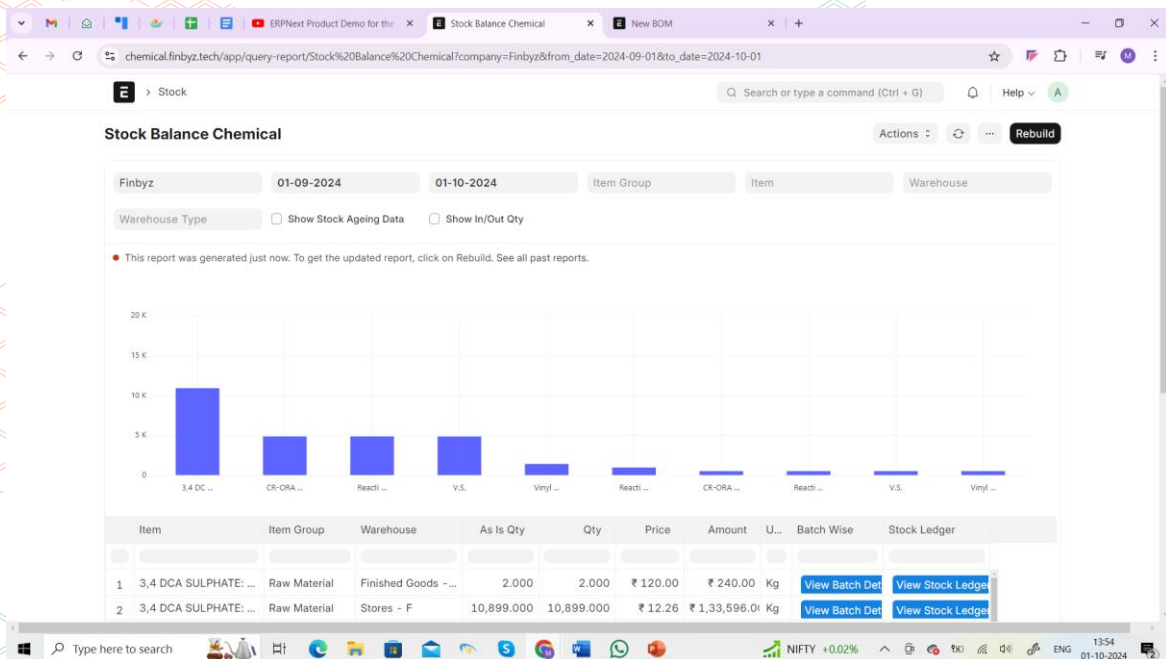# Custom Report for Stock

Custom Reports for Stock
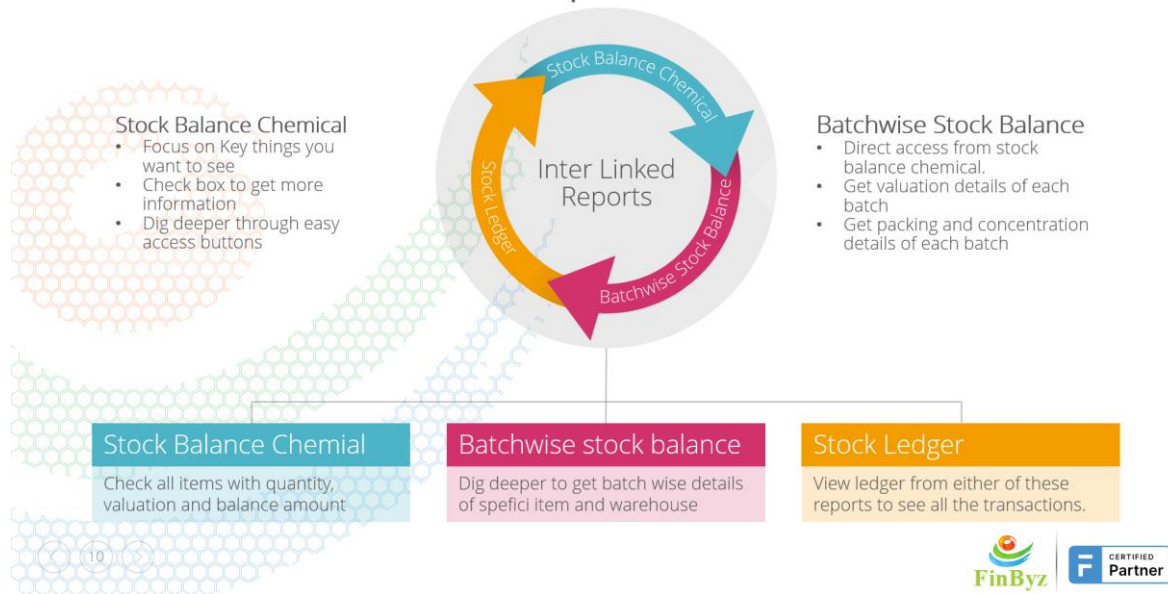
We have created two Custom Reports for Stock

1. Stock Balance Chemical
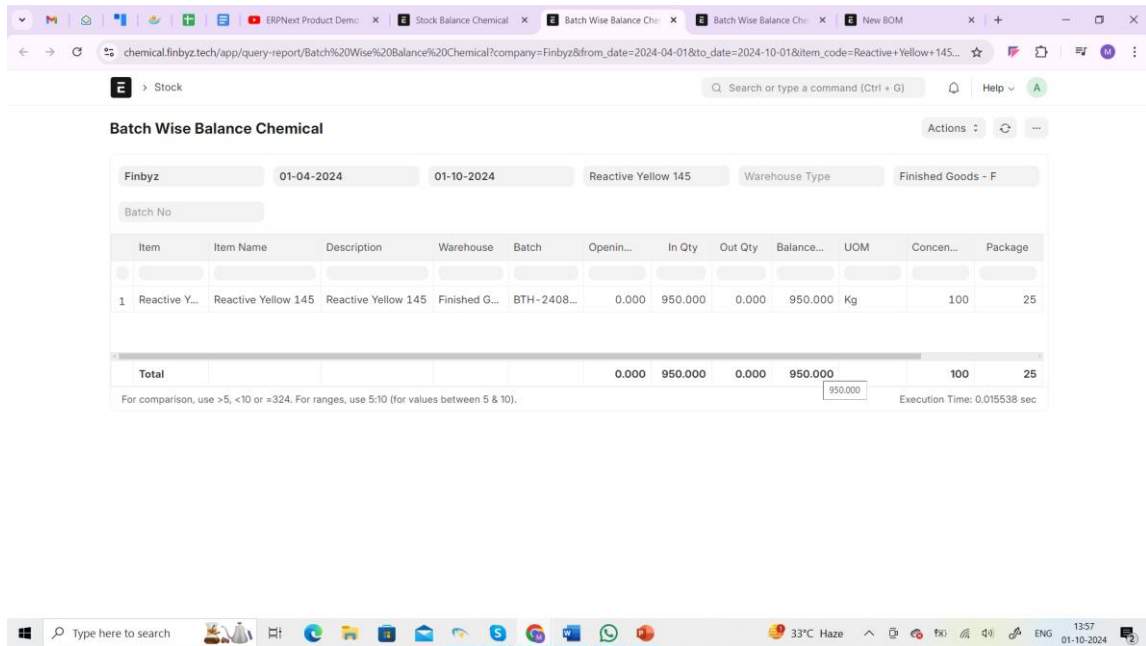2. Batchwise Balance Chemical

Stock Balance Chemical

In this report only key columns are shown to promote a linear view

Batchwise Balance Chemical

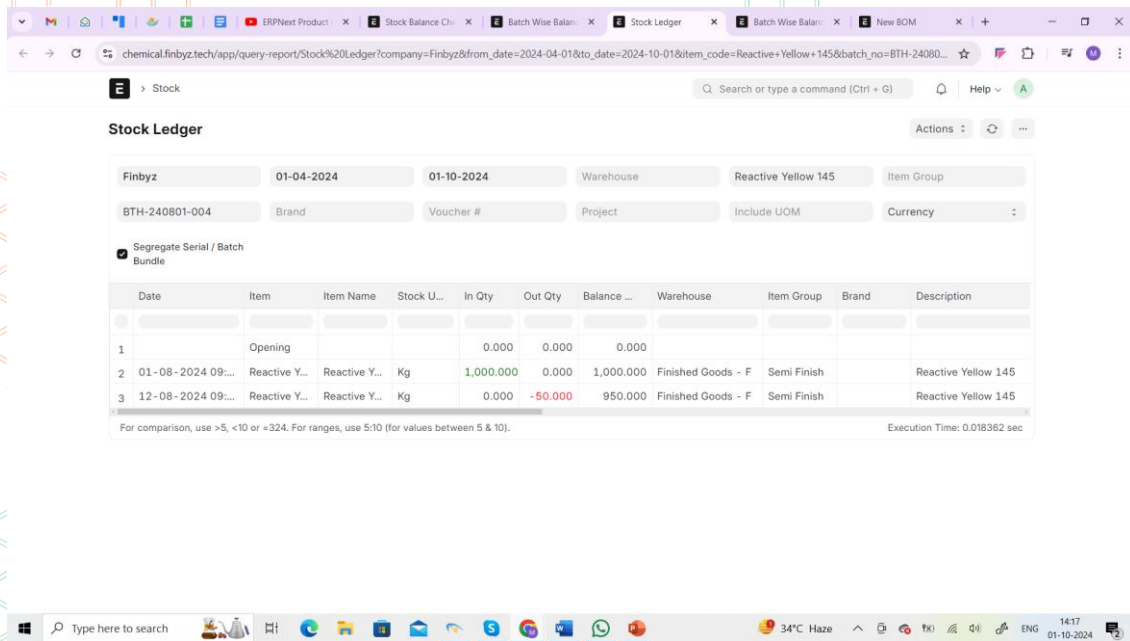To view batch-wise details, just click on View Batch details which will redirect to Batchwise Balance Chemical

To view batch-wise stock ledger, just click on View General Ledger which will redirect to Stock Ledger where you can see the transaction for that particular batch

Standard Work Flow of Sample Management

Sales Process

When final product quality is customized as per customer

Sales Order
Generate Sales Order against specific sample

Quotation
Quote against Approved Samples

Outward Sample
Get Counter Sampler Approved

Inward Sample
Get Development Sample

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