AC4D Support Note: Recycling with AC4D

Recycling Materials with AC4D

The packaging industry is at a pivotal moment as it transitions from a linear "take-make-dispose" model to a circular economy. Using Auto-Count, companies can capture packaging waste, recycle it efficiently, and reintegrate or resell materials to reduce environmental impact and create economic value. Currently, we have created a workflow targeting NGR regrinder machines which grind waste material from an extruder machine to create reusable pellets.

This feature is available in Auto-Count 19.1.1.1506 and higher.

Basic Workflow

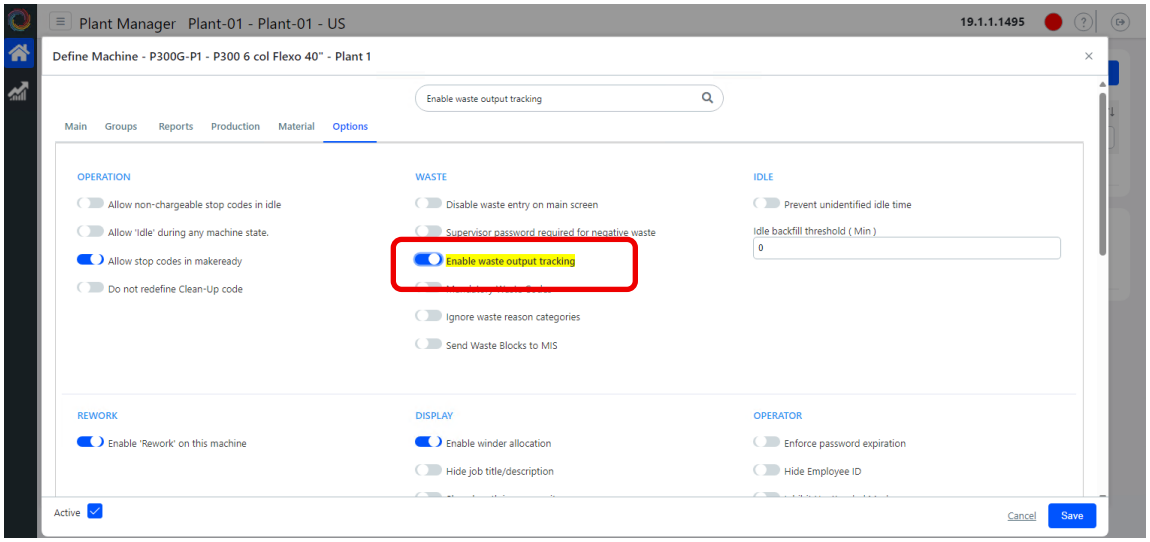
Step 1: Waste is produced and captured during production at Auto-Count 4D. Auto-Count records this waste and produces a unique ID for traceability on a Waste Ticket.

Step 2: Operators take the waste in the bin/Gaylor/pallet and bring it to the recycling machine to be ground, sorted and turned into usable material again. At the Auto-Count 4D Recycling machine, scan the unique ID on the ticket and weigh the waste before putting the waste material into the grinder machine.

Step 3: You now have a new product from the recycled material and Auto-Count will assign it a product ID. You can put it into inventory or sell it!

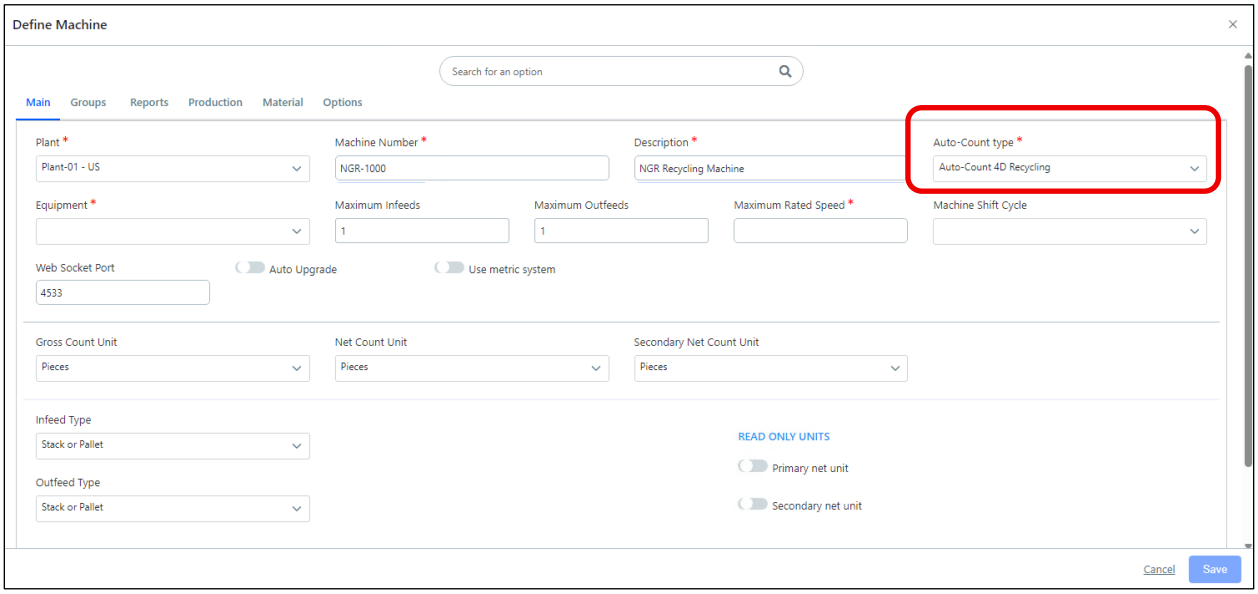
Step 1: Enable Waste Output Tracking on AC4D Machines

You must enable waste output tracking in Plant Manager to use this recycling workflow. On your production machine, select **Enable waste output tracking** from your Auto-Count machine's **Options** tab.

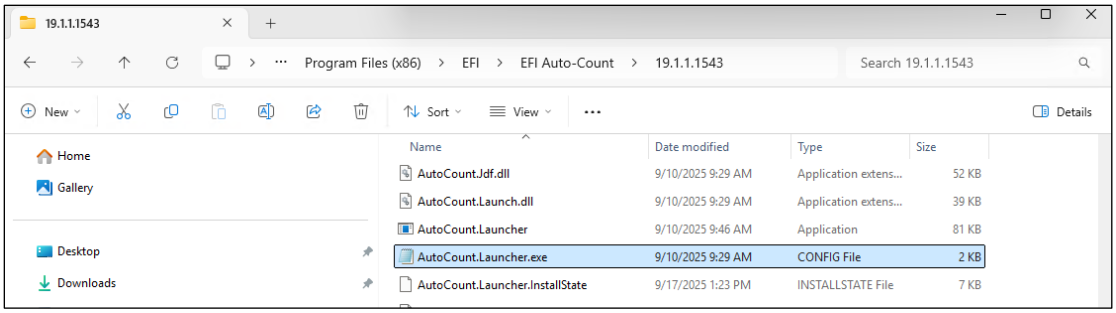


Step 2: Create an AC4D Recycling Machine in Plant Manager

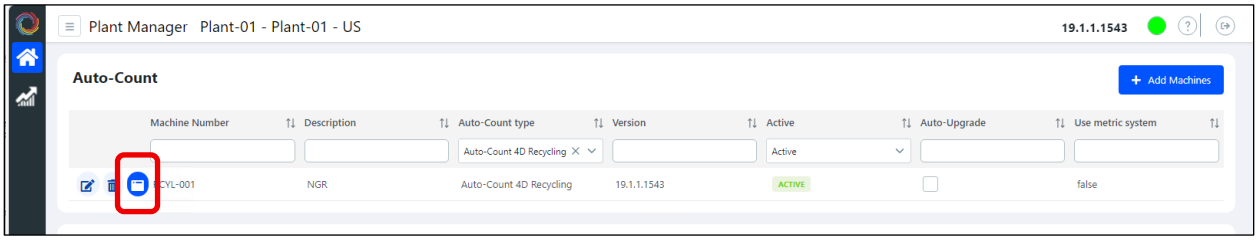
In Plant Manager, create a new machine with an Auto-Count type of **Auto-Count 4D Recycling.** This is the machine which will be at the recycling equipment that grinds the waste material. You'll scan the waste bin barcode as the input for this machine.



Don’t forget to add this new machine by running the **AutoCount.Launcher.exe** utility. Follow the onscreen prompts to add a machine.



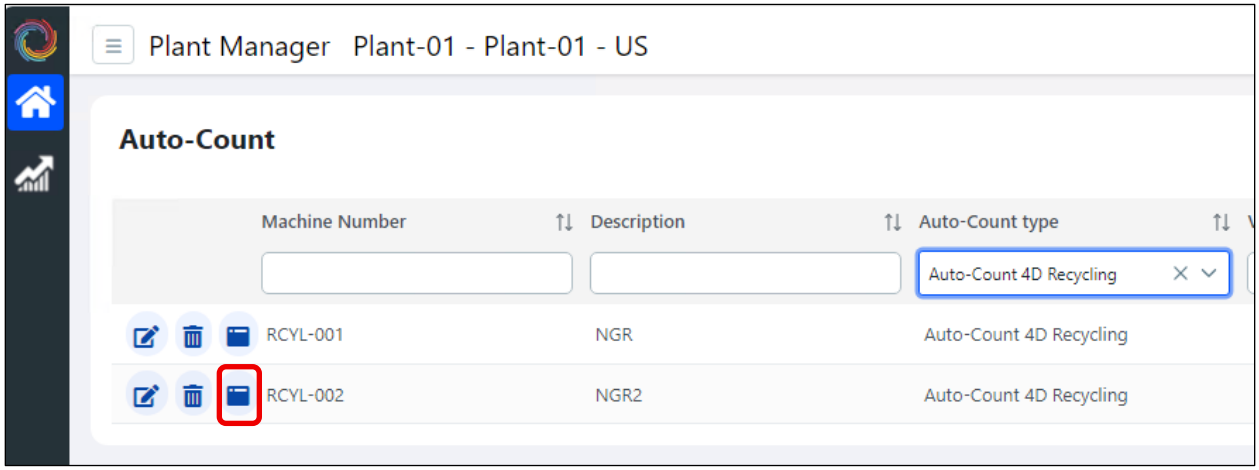
Once your machine is installed you can access the web link from your machine in Plant Manager.



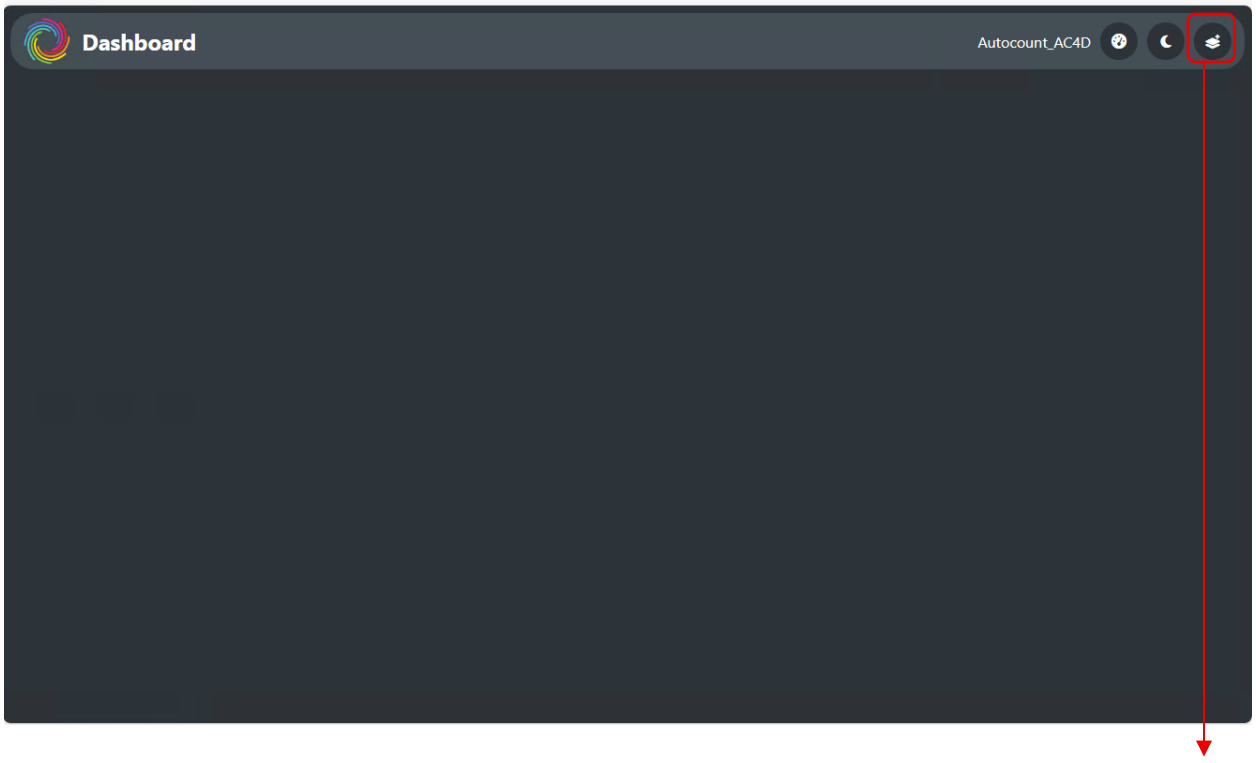
Setting Up Recycling Machine Dashboard

The first time you access a newly installed Recycling AC4D machine, you must add the correct widgets.

First, use the link in Plant Manager to open the machine.

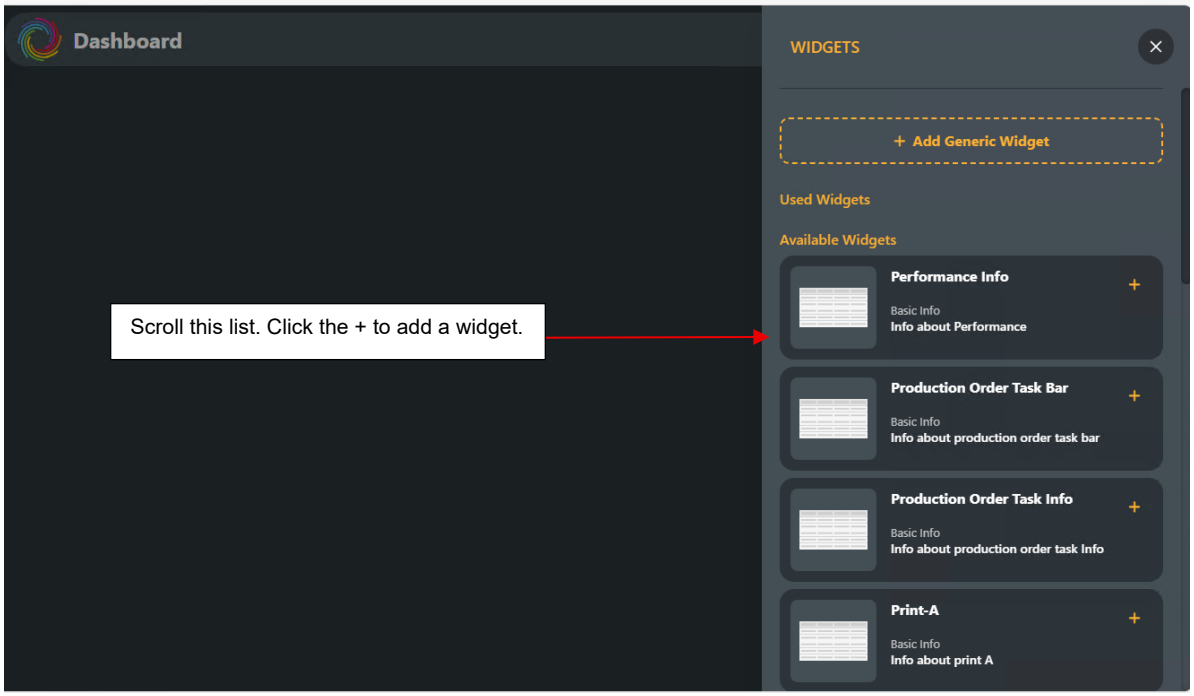


The very first time it may take a moment for this window to display. Once it has finished, click the Add Widget button.

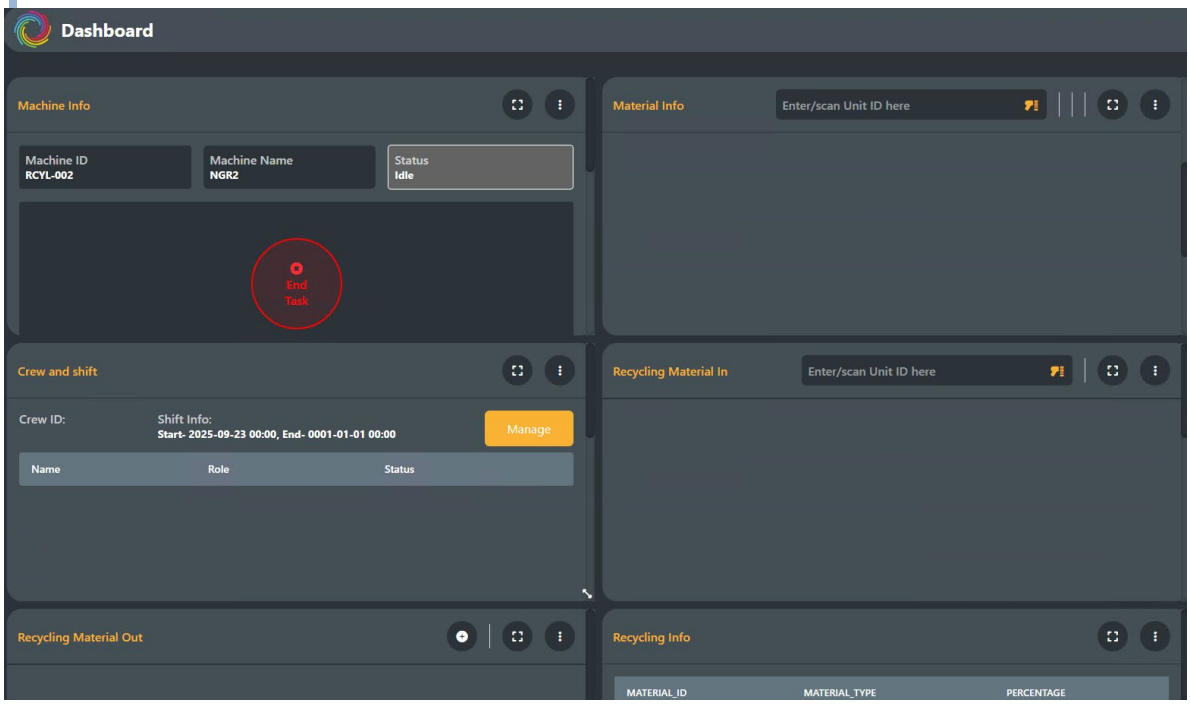


Scroll through the Available Widgets list and add the following:

- Machine Info
- Material Info
- Crew and shift
- Recycling Material In
- Recycling Material Out
- Recycling Info



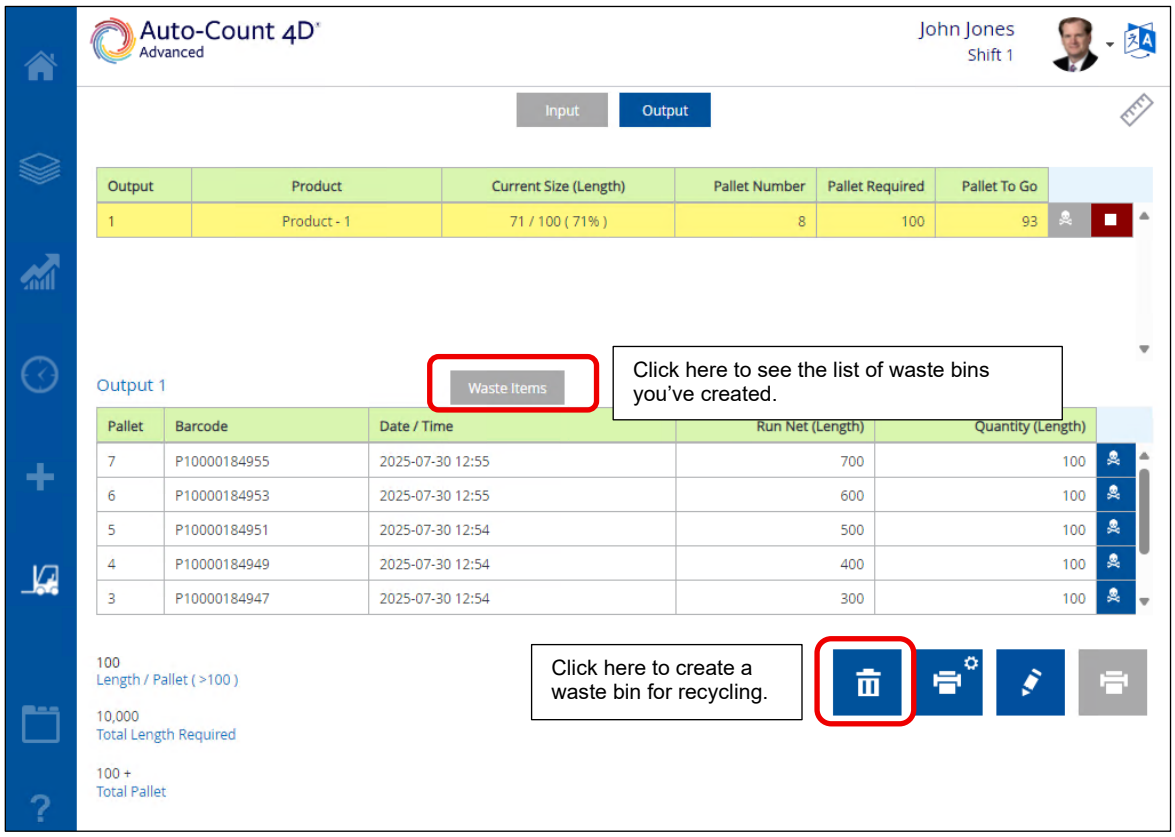
Note The first time you add a widget it may take a few minutes to load. You may need to refresh the screen after such time.



See Step 4 below for details on how to use the Dashboard in a workflow.

Step 3: Create Recycling Waste Bins at the AC4D Production Machine

When this option is enabled, you'll see a new button called **Waste Items** and a new waste bin button on the AC4D Output screen.



When you click the waste bin button, Auto-Count generates new waste output with its own unique ID and tracks the full recipe on the job along with the input materials so when you scan the bin at the recycling machine, Auto-Count will produce a new product based on the recipe items in the waste bin. Also, creating a recycling waste bin will not affect the normal production quantity values of net, gross, or production waste.

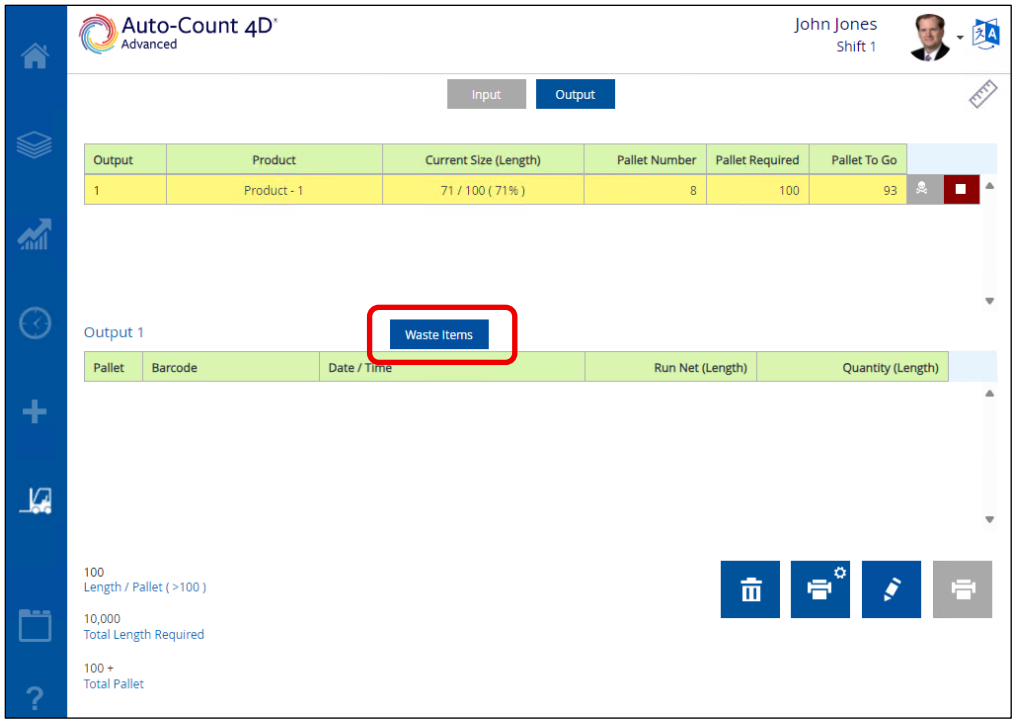
Material Recipes

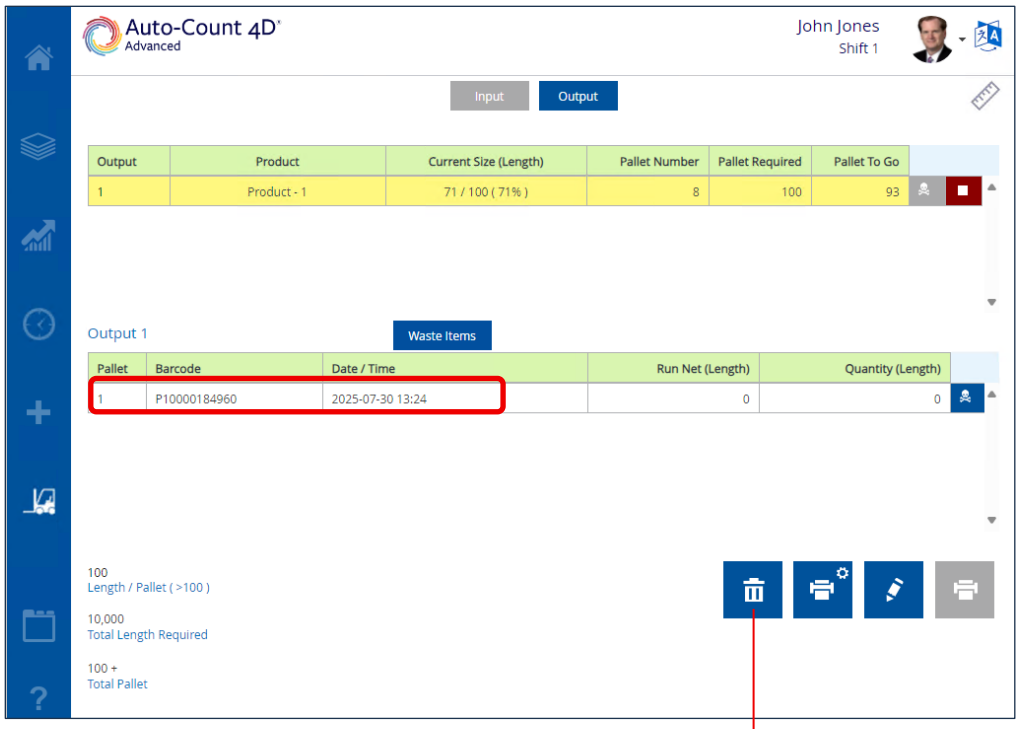
Ensure that the production job sent to Auto-Count from the MIS contains a material recipe (s) with the following fields. Otherwise the recycling machine will not accept the waste.

- MaterialType (Must be set to Resin)
- Percentage
- LayerNumber
- HopperNumber
- ItemMeasure (Weight)

The Recycling machine must keep track of the material recipes, so you know the composition of the recycled inventory product it produces. In this way you can grade the inventory as high value or low value and make the appropriate decision to sell it or consume it on another job.

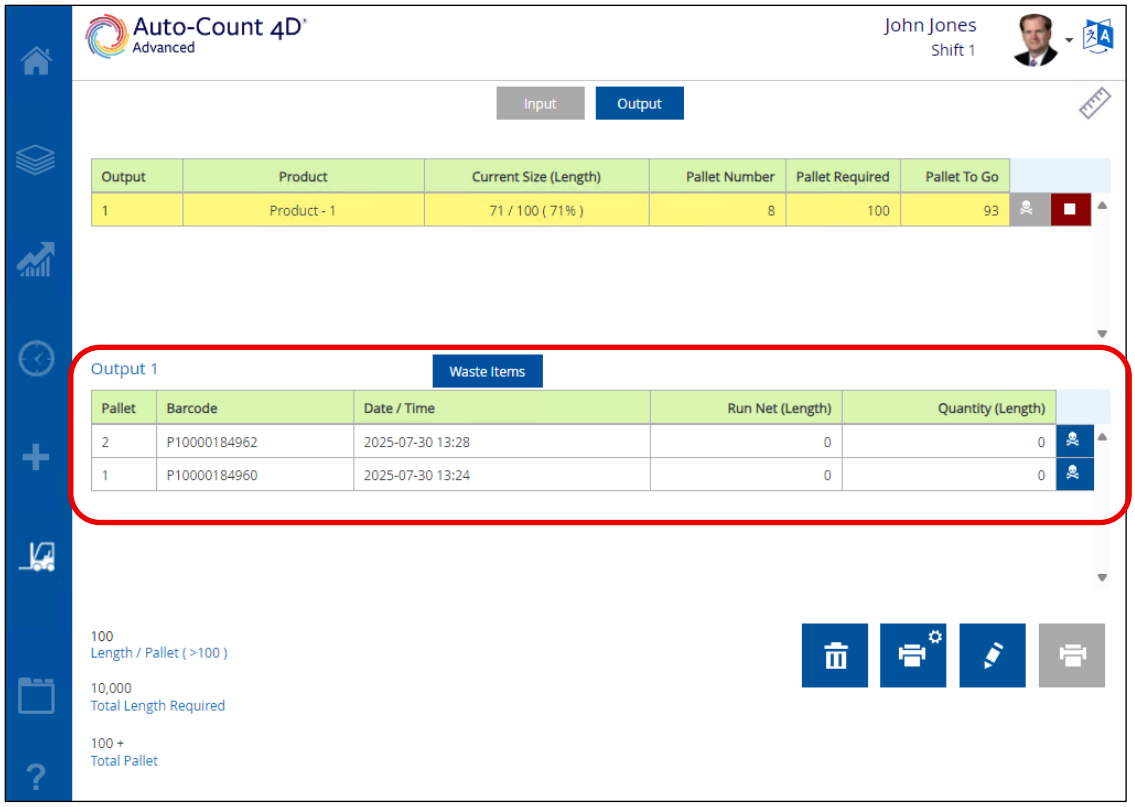
In this example, let's create a waste bin. **Click Waste** Items to display the list of bins. Then click the waste bin button to create a waste bin.





Create another bin.

Note It may take up to a minute for Auto-Count to generate the waste bin barcode.



Notes

- In the future, we will remove the Run Net and Quantity columns from the waste bin list. These are not relevant to the waste bins as we only record the weight of the material in the bin when it is weighed at the AC4D Recycling machine.
- You cannot create a waste bin if the gross count has not increased. This prevents duplicate waste bin creation.
- In the future, we will disable the Edit Output button for waste bins as this feature is not necessary for waste bins. To ensure precise weight measurement for recycling, we will not allow manual waste entry.
- This section assumes you have set up an infeed scale for this AC4D production machine to weigh the waste.

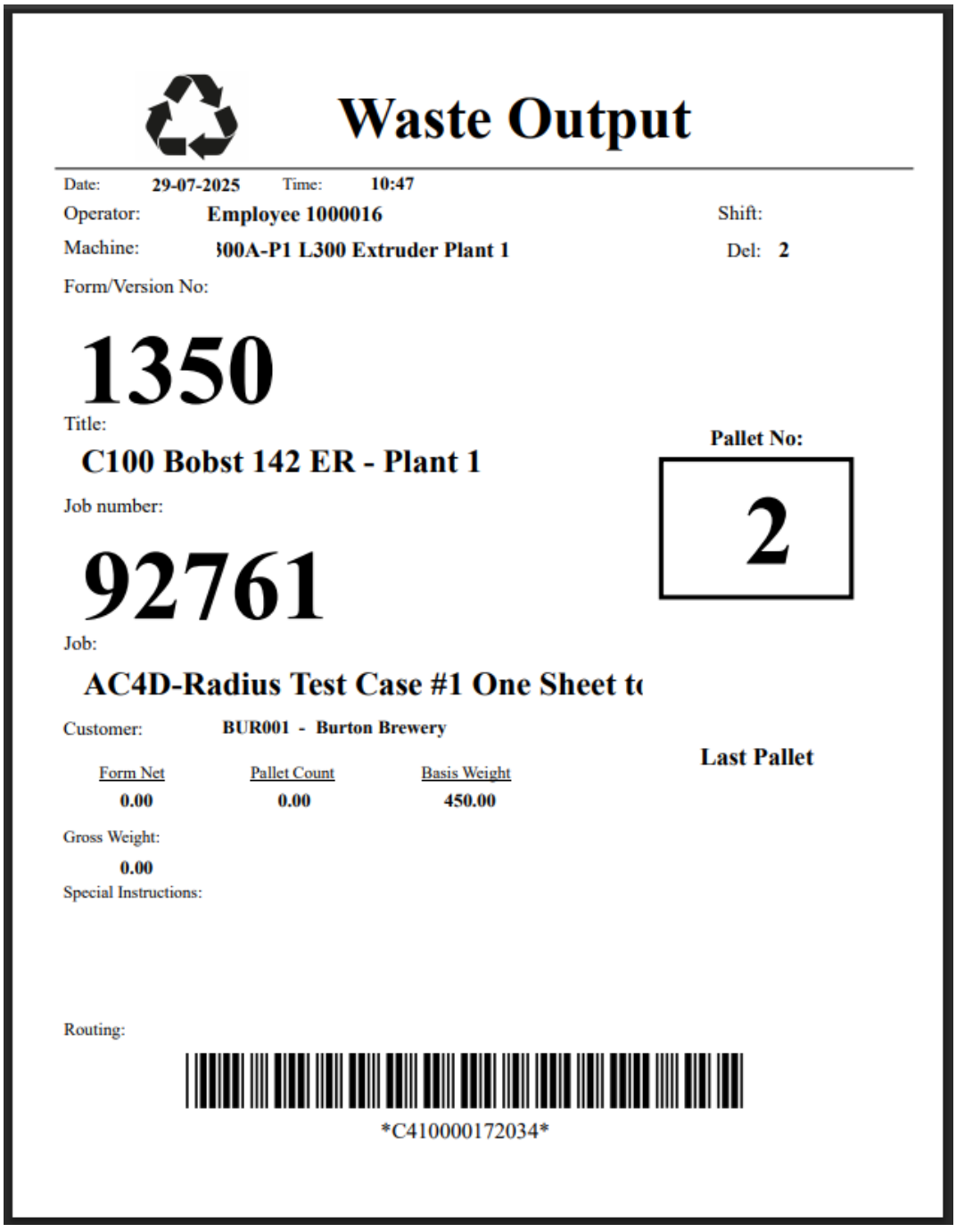
Information Collected by Auto-Count

When a recycling waste output is created, Auto-Count, via Plant Manager Connector, creates a MachinePalletCommand message with a **PalletType** of 2 (Waste Output for Recycling/ Reprocessing).

Within the MaterialPalletDetail node, you'll find the recipe used and all materials used on the production job. This ensures that when the barcode for this bin is scanned at the AC4D Recycling machine, you'll know the content of the newly recycled material.

Waste Recycling Ticket

This is the ticket which will automatically print when you create a recycling waste bin. We've also added this to the list of standard reports and tickets so you can easily reprint as needed.



Waste Output

Date: 29-07-2025 Time: 10:47

Operator: Employee 1000016 Shift:

Machine: 300A-P1 L300 Extruder Plant 1 Del: 2

Form/Version No:

1350

Title:

C100 Bobst 142 ER - Plant 1

Pallet No:

2

Job number:

92761

Job:

AC4D-Radius Test Case #1 One Sheet t

Customer: BUR001 - Burton Brewery

Last Pallet

Form Net	Pallet Count	Basis Weight
0.00	0.00	450.00

Gross Weight:

0.00

Special Instructions:

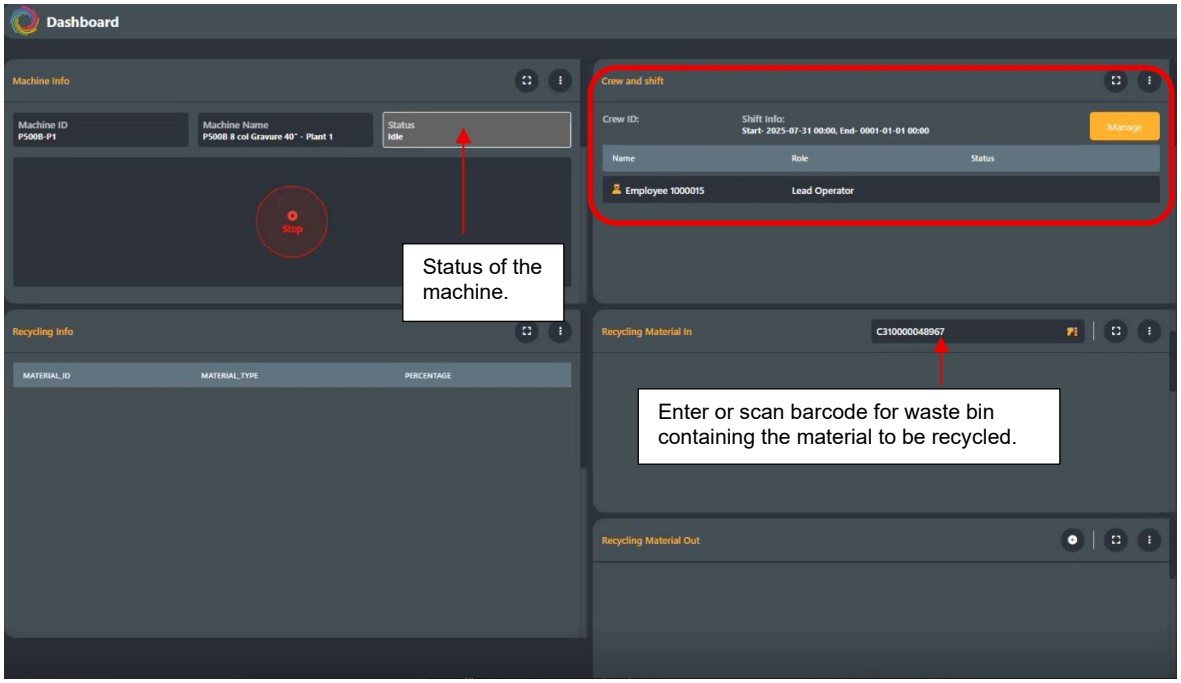
Routing:

C410000172034

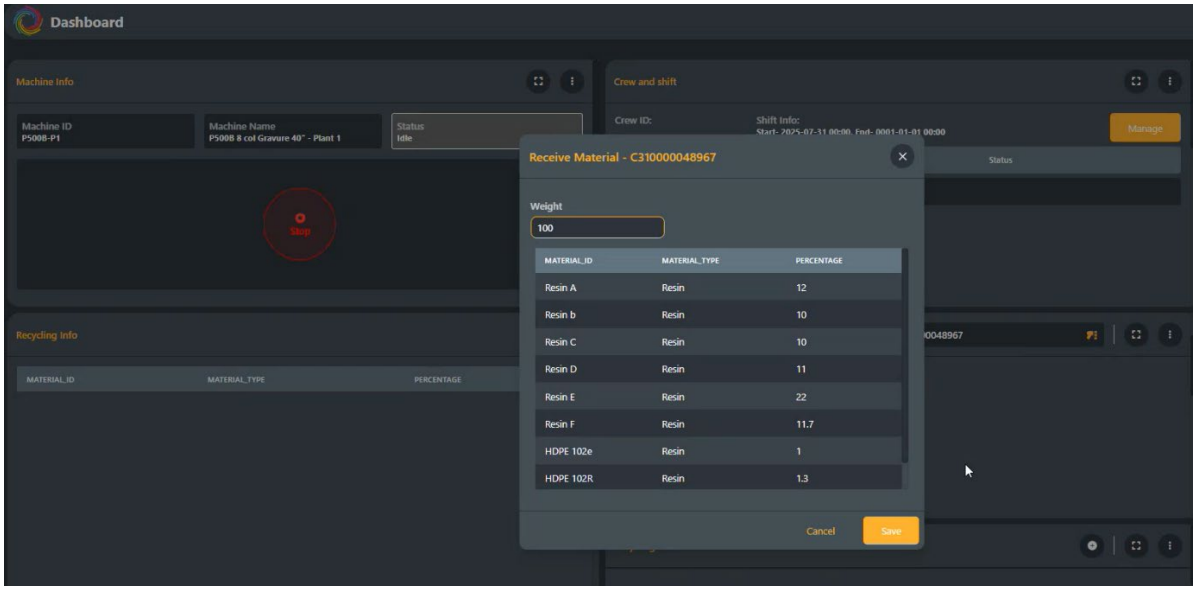
Step 4: Create New Product from Waste at the Recycling Machine

The Recycling AC4D machine is a widget-based user interface. To access this from your browser, the AC4D Recycling Service must be running just like traditional AC4D machines. There are only two states of this machine – Idle and Production. This section assumes you have set up an infeed scale for this AC4D recycling machine to weigh the waste.

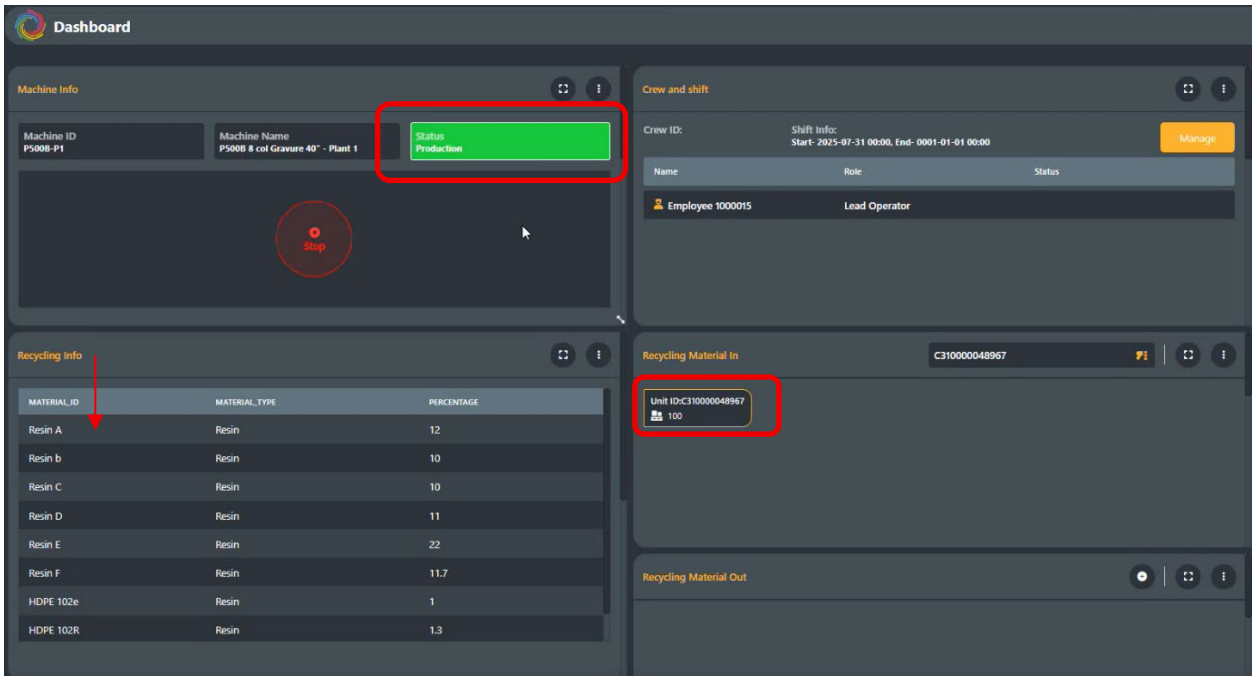
Step 1: **Start a Job** An Employee logs into the machine and scans the barcode of the waste bin/gaylord.



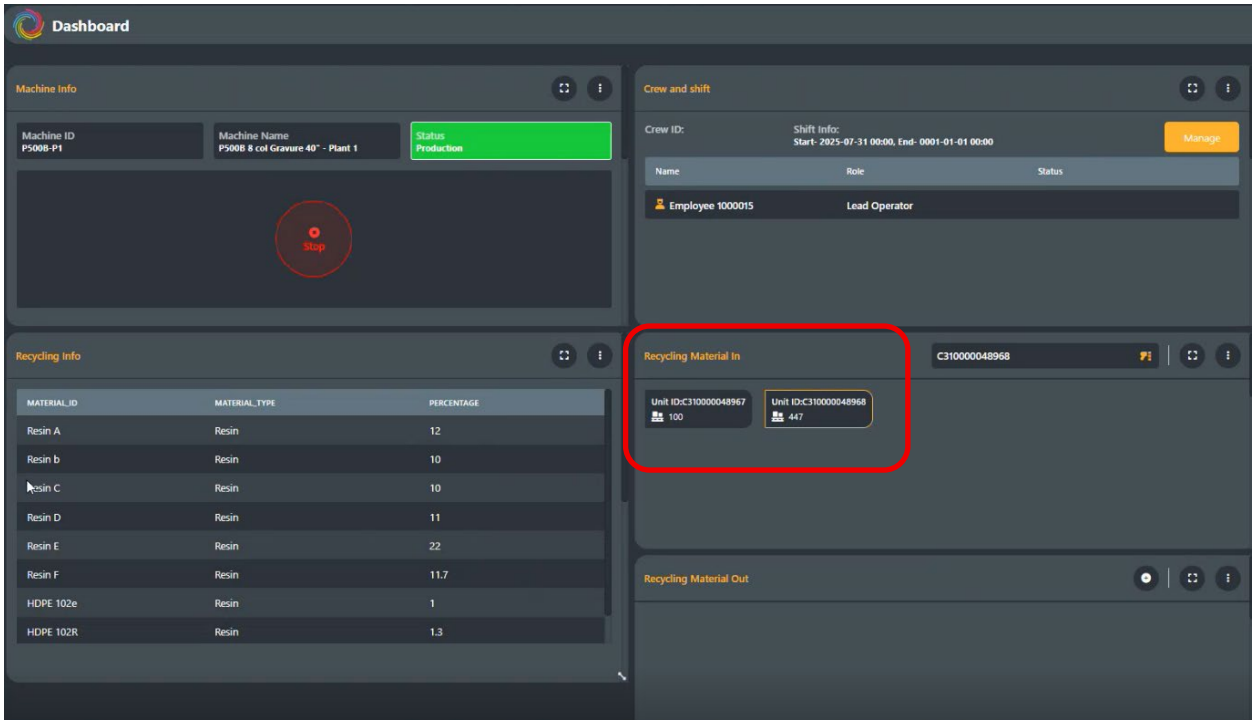
Step 2: Weight the waste material Auto-Count displays the material recipe components of the material from the original production job after you enter the waste bin barcode. From this window, Auto-Count records the weight of the waste material sent from your scale. Click **Save**.



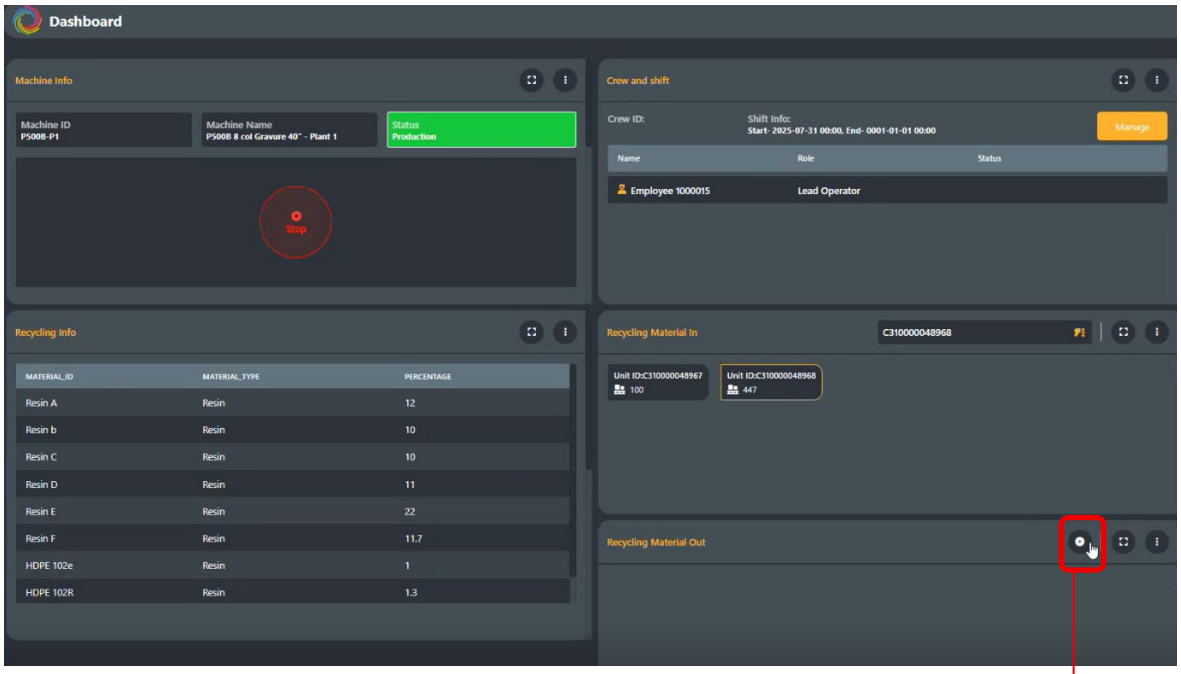
Once saved, the machine automatically goes into Production, and an ‘input’ bin is created. In the Recycling Info widget, the operator can see the recipe being used to produce the new item.



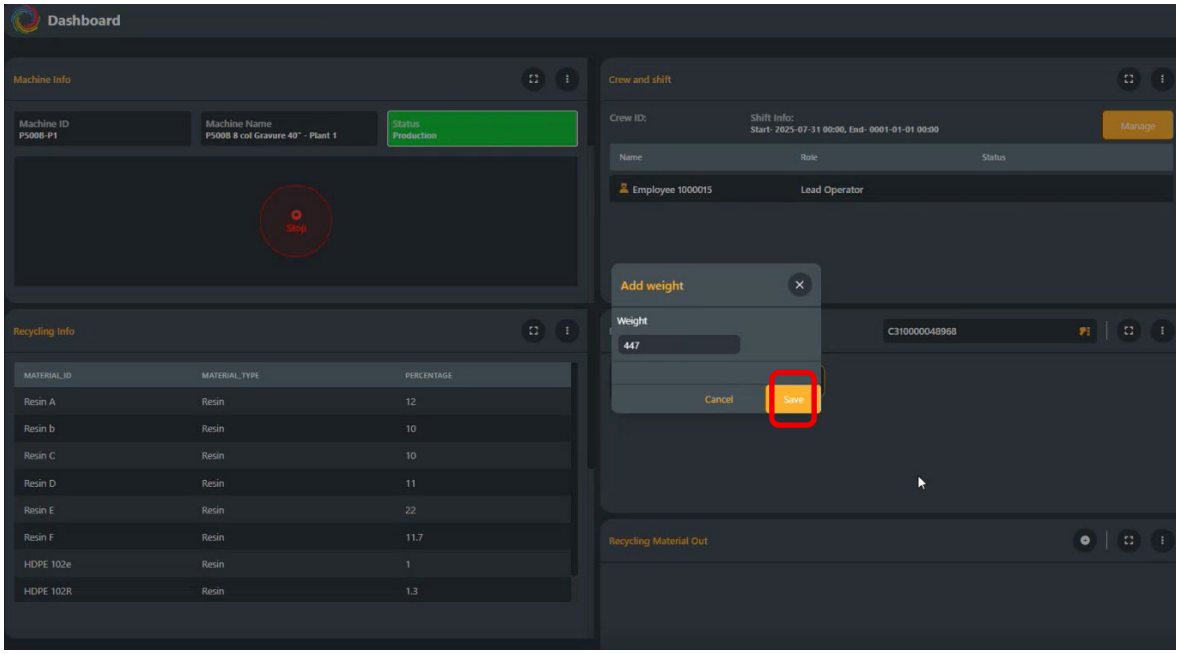
Continue to add more waste bin inputs. The Recycling Info widget will update as you add additional inputs.



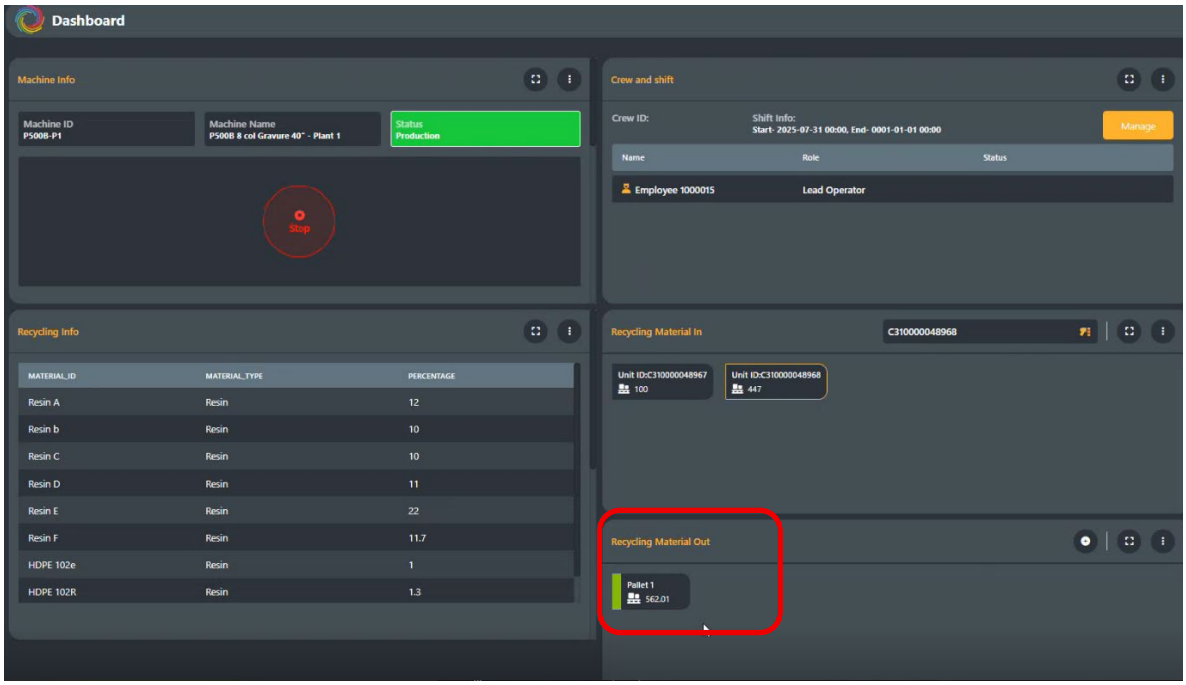
Step 3: Create New Product Once you have entered enough material into the recycling machine, you can start creating outputs. In the Recycling Material Out widget click the plus button  to create an output. T



he weight from you scale will automatically be used. Click **Save**.



Now you have an output.



Step 4: End Job Once you have the outputs created for this job, simply press **Stop** in the Machine Info widget to end the job.