

# Material Reservation Mode

## 11.2

February 2026

### DOCUMENT ACCESS

Public

### DISCLAIMER

The contents of this document are under copyright of Critical Manufacturing S.A. it is released on condition that it shall not be copied in whole, in part or otherwise reproduced (whether by photographic, or any other method) and the contents therefore shall not be divulged to any person other than that of the addressee (save to other authorized offices of his organization having need to know such contents, for the purpose for which disclosure is made) without prior written consent of submitting company.

# Material Reservation Mode

*Estimated time to read: 7 minutes*

When you are working with BOMs, and their Scope is Durables, Materials, Packing, or Weigh And Dispense, you will have to define whether the BOM Products include Material Reservations, and how Material Reservations are handled for the BOM Items.

Material Reservation is the process of allocating specific quantities of raw materials, components, or subassemblies from inventory to a specific production or work order. This ensures that those Materials are not consumed by other orders and are available when production begins.

The Material Reservation Mode property has three options to select from:

- Material Dependency
- None (default)
- Production Order

This tutorial will show you how to can use the Material Reservation Mode property in relation to the Material Dependency and Production Order options.

For both Material Dependency and Production Order you must ensure that you have your Critical Manufacturing MES structure configured which will allow you to set up these modes.

For the example scenario below, you will need to create:

- Steps
- Flows
- Products
- Materials
- BOMs
- Resources
- Services

For the purpose of this tutorial all new entities, including the ones above, were created and can be uploaded via the following Master Data files:

- [Material Dependency](#)
- [Production Order](#)

The provided Master Data files will allow you to undertake the paths and instructions provided below.

For more information, see [Manage BOM Items](#).

## Material Dependency

1. Create a **BOM** and set its Scope as Materials:

**Create New BOM**

CHANGE SET — GENERAL DATA

**General Data**

Name: AA-BOM-01

Revision: Name can be automatically generated or you can enter a name of your choice

Description: AA-BOM-01

\* Type: General

Data Group:

**Information**

\* Scope: Materials

Product: Product

\* Base Quantity: 1

\* Units: Unit

Drawing: Drag file to upload or Browse File

Comments:

Cancel < Back Create

2. Select the section **BOM Items** and then select **Manage**:

**Manage BOM Items**

BOM ITEMS — SUBSTITUTES

AA-BOM-01 [A,2] / AA-BOM-01

**BOM Items**

| PRODUCT                     | QTY    |
|-----------------------------|--------|
| AA-Prod-01 [A] (AA-Prod-01) | 1 Unit |
| AA-Prod-01                  |        |

**BOM Items Details**

\* Product: AA-Prod-01 [A]

Product Description: AA-Prod-01

\* Quantity: 1

Units: Unit

Location:

Position:

Named Position:

\* Source Step: AA-Step-Warehouse

Designator:

Assembly Step: AA-Step-Mixing

Comments:

Cancel < Back Next >

3. Be sure to enter the necessary information, and set the Material Reservation Mode property to Material Dependency:

**Manage BOM Items**

BOM ITEMS — SUBSTITUTES

AA-BOM-01 [A,Z] / AA-BOM-01

**BOM Items**

| PRODUCT                                   | QTY    |
|---|--------|
| AA-Prod-01 [A] (AA-Prod-01)<br>AA-Prod-01 | 1 Unit |

Source Step: AA-Step-Warehouse

Designator:

Assembly Step: AA-Step-Mixing

Logical Flow Path:

Browse

Reference:

Product Mix Allowed:

Material Reservation Mode: Material Dependency

Condition

Characteristic:

Value:

Comments:

Cancel < Back Next >

4. Define the **BOMContext** Smart Table by adding the **Step** when the **BOM** will be used, and the other necessary information:

**+ Add BOM Context Record(s)**

BOMContext (Active)

Record(s)

Record #1  
Step: AA-Step-Mixing | BOM: AA-BOM-01 | AssemblyType: AutomaticAtTrackOut | TrackInCheckMode: None | Trac

**BOM Context**

Step: AA-Step-Mixing

Logical Flow Path:

Browse

Product: Product

Product Group: Product Group

Flow: Flow

Material: Material

Production Order: Production Order

BOM: AA-BOM-01

Assembly Type: Automatic At Track Out

Track-In Check Mode: None

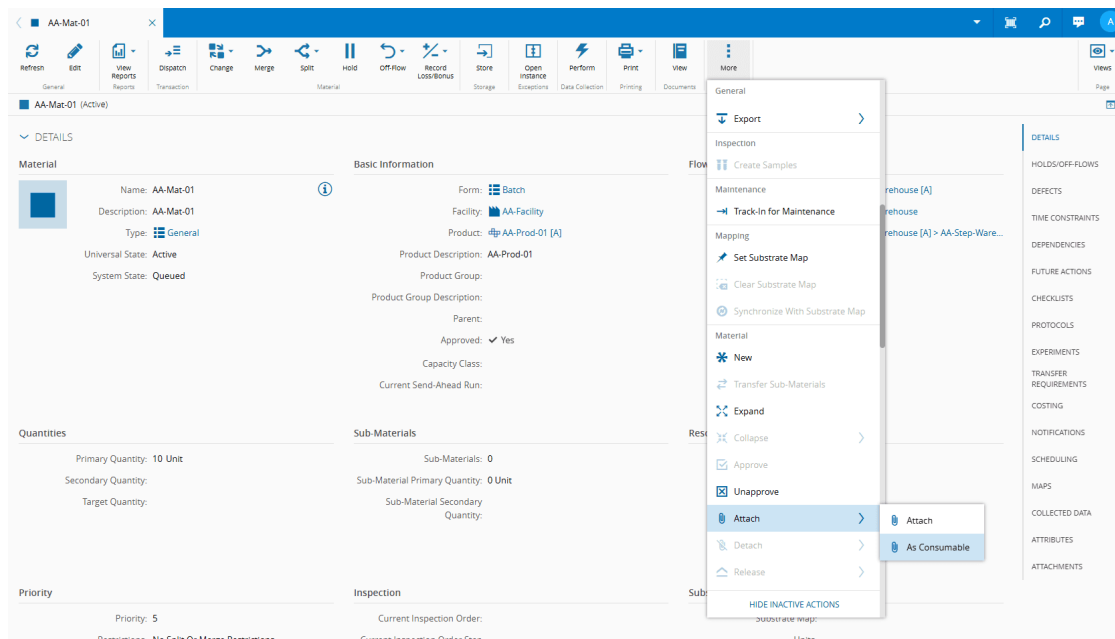
Track-Out Losses Mode: Before Assembly

Weigh And Dispense Mode:

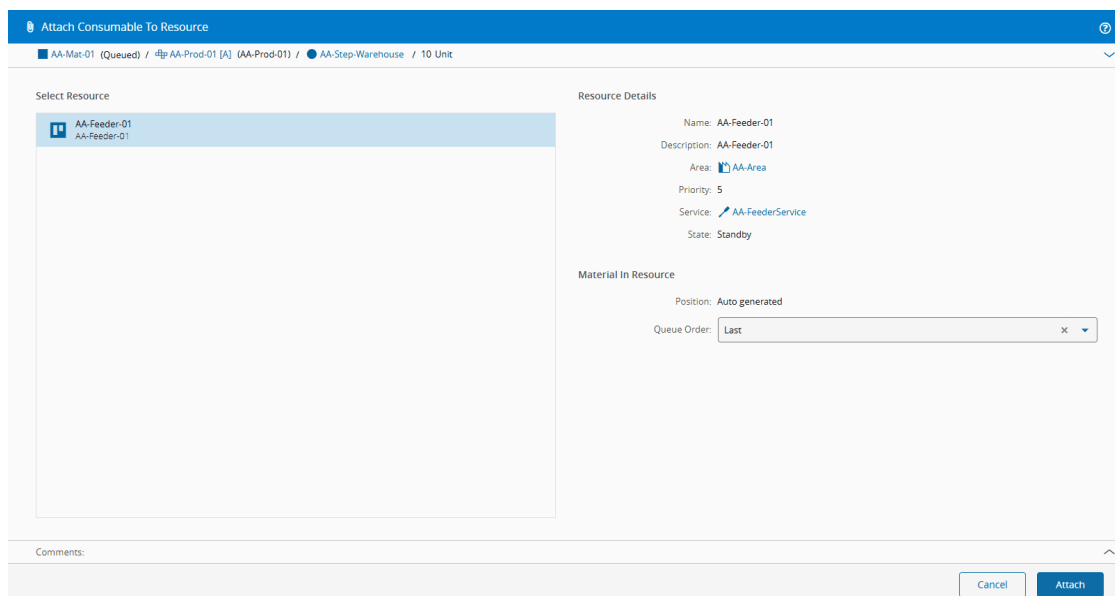
Comments:

Cancel Add

5. Attach your consumable **Material** as shown below:



6. Confirm the information and select **Attach**:



7. Go to the **Dependencies** section, select **Manage**, and select the **To** tab if you are creating the dependency from the main **Material** point of view:

Manage Material Dependencies

FROM
TO

AA-Mat-02 (Queued) / AA-Prod-02 [A] (AA-Prod-02) / AA-Step-Mixing / 10 Unit

Dependencies

AA-Mat-01

Material Dependency Details

\* From Material: AA-Mat-01

\* From Step: AA-Step-Mixing

From Flow Path: AA-Flow-Production [A]

Flow Path: AA-Flow-Production [A] > AA-Step-Mixing

To Material: AA-Mat-02

\* To Step: AA-Step-Mixing

To Flow Path: AA-Flow-Production [A]

Flow Path: AA-Flow-Production [A] > AA-Step-Mixing

Comments:

Cancel
Update

8. Complete the necessary information and make sure the System State property is set to Closed:

Manage Material Dependencies

FROM
TO

AA-Mat-02 (Queued) / AA-Prod-02 [A] (AA-Prod-02) / AA-Step-Mixing / 10 Unit

Dependencies

AA-Mat-01

Material Dependency Details

\* To Step: AA-Step-Mixing

To Flow Path: AA-Flow-Production [A]

Flow Path: AA-Flow-Production [A] > AA-Step-Mixing

From Quantity:

From Units: Units

To Quantity:

To Units: Units

System State: Closed

Comment:

Comments:

Cancel
Update

**Note**

If the System State property is set to Open, the system will return the following error when you try to Track-In:

Dispatch and Track-In Material

RESOURCE BOM RESULTS

AA-Mat-02 (Queued) / AA-Prod-02 [A] (AA-Prod-02) / AA-Step-Mixing / 10 Unit

The object AA-Mat-02 of type Material has dependencies on object AA-Mat-01 of type Material.

Comments:

Cancel < Back Next > Track-In

9. You can now Dispatch and Track-In your main **Material** and verify the **BOM** information:

Dispatch and Track-In Material

RESOURCE BOM

AA-Mat-02 (Queued) / AA-Prod-02 [A] (AA-Prod-02) / AA-Step-Mixing / 10 Unit

AA-BOM-01 [A] (AutomaticAtTrackOut) / Units: Unit

BOM

| ITEM | LOCATION | POSITION | PRODUCT        | PRODUCT DESCRIPTION | STEP             | QUANTITY | REFERENCE | PRODUCT MIX | DISCRETE | REQUIRED QTY. | CURRENT QTY. | DELTA  |
|------|----------|----------|----------------|---------------------|------------------|----------|-----------|-------------|----------|---------------|--------------|--------|
| 1    |          |          | AA-Prod-01 [A] | AA-Prod-01          | AA-Step-Warehous | 1 Unit   | X         | X           | X        | 10 Unit       | 10 Unit      | 0 Unit |

Rows per Page: 25 Page 1 of 1 (1 Records)

Comments:

Cancel < Back Track-In

Dispatch and Track-In Material

RESOURCE — BOM

AA-Mat-02 (Queued) / AA-Prod-02 [A] (AA-Prod-02) / AA-Step-Mixing / 10 Unit

AA-BOM-01 [A] (AutomaticAtTrackOut) / Units: Unit

Consumable Feed: AA-Feeder-01

AA-Prod-01

| MATERIAL  | PRODUCT        | STEP              | PRIMARY QTY. | EXPIRATION DATE |
|-----------|----------------|-------------------|--------------|-----------------|
| AA-Mat-01 | AA-Prod-01 [A] | AA-Step-Warehouse | 10 Unit      |                 |

Rows per Page: 25 Page 1 of 1 (1 Records)

Comments:

Cancel < Back Track-In

10. Select **Track-In**.

11. When you then select **Track-Out**, the whole **Material** will be consumed.

**Warning**

If you select Material Dependency for the Material Reservation Mode, but do not create a Dependency for the Material you want to produce, the system will return an error. In the example below, the AA-Mat-02 is the Material that is being produced, and it depends on AA-Mat-01 to provide it with its raw materials. As this Dependency was not created, the system will not allow you continue, and explains just that in the error message:

Track-Out Material

RESOURCE STATE — RESULTS

AA-Mat-02 (InProcess) / AA-Prod-02 [A] (AA-Prod-02) / AA-Step-Mixing / 10 Unit

There must be an active Material Dependency from Material 'AA-Mat-01' to the Material 'AA-Mat-02'.

Comments:

Cancel < Back Next > Track-Out

## Production Order

1. Create a **BOM** and set its Scope as Materials:



**Create New BOM**

CHANGE SET — GENERAL DATA

**General Data**

Name: AAA-BOM-01

Revision: Name can be automatically generated or you can enter a name of your choice

Description: AAA-BOM-01

\* Type: General

Data Group:

**Information**

\* Scope: Materials

Product: Product

\* Base Quantity: 1

\* Units: Unit

Drawing: [Drag files to upload](#) or [Browse Files](#)

Comments:

[Cancel](#) [Back](#) [Create](#)

2. Select the section **BOM Items** and then select **Manage**:

**Manage BOM Items**

BOM ITEMS — SUBSTITUTES

AAA-BOM-01 [A.1] / AAA-BOM-01

**BOM Items**

| PRODUCT                       | QTY    |
|-------------------------------|--------|
| AAA-Prod-01 [A] (AAA-Prod-01) | 1 Unit |
| No Position                   |        |

**BOM Items Details**

\* Product: AAA-Prod-01 [A]

Product Description: AAA-Prod-01

\* Quantity: 1

Units: Unit

Location:

Position:

Named Position:

\* Source Step: AAA-Step-Warehouse

Designator:

Assembly Step: AAA-Step-Mixing

Comments:

[Cancel](#) [Back](#) [Next](#)

3. Be sure to enter the necessary information, and set the Material Reservation Mode property to Production Order:

**Manage BOM Items**

BOM ITEMS — SUBSTITUTES

AAA-BOM-01 [A.1] / AAA-BOM-01

**BOM Items**

| PRODUCT                       | QTY    |
|-------------------------------|--------|
| AAA-Prod-01 [A] (AAA-Prod-01) | 1 Unit |

Named Position:

\* Source Step:

Designator:

Assembly Step:

Logical Flow Path:

Reference: ☐

Product Mix Allowed: ☐

\* Material Reservation Mode:

**Condition**

Characteristic:

Value:

Comments:

4. Define the **BOMContext** Smart Table by adding the **Step** when the **BOM** will be used, and the other necessary information:

**+ Add BOM Context Record(s)**

BOMContext (Active)

**Record(s)**

| Record #1   |
|---|
| Step: AAA-Step-Mixing   BOM: AAA-BOM-01   AssemblyType: AutomaticAtTrackOut   TrackInCheckMode: None   Tr |

**BOM Context**

\* Step:

Logical Flow Path:

Product:

Product Group:

Flow:

Material:

Production Order:

\* BOM:

\* Assembly Type:

Track-In Check Mode:

Track-Out Losses Mode:

Weigh And Dispense Mode:

Comments:

5. Create a **Production Order** with the **Product** to be produced and all the other necessary information:

1 GENERAL DATA

General Data

Name:

AAA-ProductionOrder

Description:

AAA-ProductionOrder

\* Type:

General

x

System State:

Created

Data Group:

\* System State:

Created

x

Information

\* Order Number:

1

Order Line:

Owner Role:

Customer:

Business Partner

Facility:

Facility

\* Provider:

AAA-Prvrd-021A1

x

Comments:

Cancel

Create

**Create Production Order**

GENERAL DATA

---

\* Product: AAA-Prod-02[A]

\* Flow Path: AAA-Flow-Production [A] AAA-Step-Mixing

Browse

Flow Path: AAA-Flow-Production [A] > AAA-Step-Mixing

\* Quantity: 10

\* Units: Unit

\* Under Delivery Tolerance (%): 0 Minimum Quantity: 10

\* Over Delivery Tolerance (%): 0 Maximum Quantity: 10

Product Yield (%): 100

Yield Adjusted Quantity: 10

### Scheduling

\* Due Date: 06/30/2025 04:31 PM

\* Priority: 5

Planned Start Date: MM/dd/yyyy HH:mm PP

Comments:

Cancel Create

6. On the top ribbon of your **Production Order**, select **Release**:

AAA-ProductionOrder

Refresh Edit Release Start Restrict Cancel Assign Reassign Create Material More

General Release Production Order

AAA-ProductionOrder (Active)

DETAILS

Production Order

Name: AAA-ProductionOrder  
Description: AAA-ProductionOrder  
Type: General  
Universal State: Active  
System State: Created

Quantities

In Progress  
Completed  
Delivered

Quantity: 10 Unit  
Minimum Quantity: 10 Unit  
Maximum Quantity: 10 Unit  
In Progress: 0 Unit  
Completed: 0 Unit  
Delivered: 0 Unit

Information

Order Number: 1  
Order Line:  
Owner Role:  
Customer:  
Product: AAA-Prod-02 [A]  
Facility:  
Row: AAA-Flow-Production [A]  
Step: AAA-Step-Mixing  
Product Yield: 100 %  
Yield Adjusted Quantity: 10 Unit  
Under Delivery Tolerance: 0 %  
Over Delivery Tolerance: 0 %

Scheduling

Due Date: 06/30/2025 04:31 PM  
Planned Start Date: 07/02/2025 03:07 PM  
Planned End Date: 07/10/2025 03:07 PM  
Priority: 5  
Standard Cycle Time: 0 days(s)  
Cycle Time Buffer: 8 days(s)  
Include In Planning: Yes

Options

Validate Material Products: No  
Restrict Order on Completion: Yes  
Restricted: No

Notifications

Notify List on State Changes: No  
Notification Date:  
Distribution List:

7. Enter the needed dates and select **Release**:

Release Production Order

AAA-ProductionOrder (Created) / AAA-Prod-02 [A] / 10 Unit

Scheduling

\* Planned Start Date: 07/02/2025 03:07 PM

\* Planned End Date: 07/10/2025 03:07 PM

Comments:

Cancel Release

8. In the **Production Order**, select the **Materials** section followed but the **Assign** button on the top ribbon to assign your main **Material**:

**Assign Materials to Production Order**

AAA-ProductionOrder (Released) / AAA-Prod-02 [A] / 10 Unit

**Materials to Assign**

- AAA-Mat-02 (in progress)
- 10 Unit / ProductAAA-Prod-02

**Material details**

\* Material: AAA-Mat-02

State: Queued

Product: AAA-Prod-02 [A]

Step: AAA-Step-Mixing

Quantity: 10 Unit

Type: General

Facility: AAA-Facility

Flow: AAA-Flow-Production [A]

Comments:

Cancel Assign

9. Select **Assign** and your **Production Order** will have the main **Material** assigned to it:

AAA-ProductionOrder

PRODUCTION ORDER STEPS

MATERIALS

ACTIVE ACCOUNTS TO Search

| MATERIAL   | ACTIVE | ACCOUNTS TO | STATUS      | PRODUCT         | PRODUCT DESCRIPTION | QUANTITY | UNITS | FACILITY     | STEP            |
|------------|--------|-------------|-------------|-----------------|---------------------|----------|-------|--------------|-----------------|
| AAA-Mat-02 | ✓      | ✓           | In Progress | AAA-Prod-02 [A] | AAA-Prod-02         | 10       | Unit  | AAA-Facility | AAA-Step-Mixing |

Rows per Page: 25 Page 1 of 1 (1 Records)

10. Now, attach your consumable **Material** as shown below:

AAA-Mat-01

DETAILS

Material

Name: AAA-Mat-01

Description: AAA-Mat-01

Type: General

Universal State: Active

System State: Queued

Form: Batch

Facility: AAA-Facility

Product: AAA-Prod-01 [A]

Product Description: AAA-Prod-01

Product Group:

Parent:

Approved: ✓ Yes

Capacity Class:

Current Send-Ahead Run:

Quantities

Primary Quantity: 10 Unit

Secondary Quantity:

Target Quantity:

Sub-Materials

Sub-Materials: 0

Sub-Material Primary Quantity: 0 Unit

Sub-Material Secondary Quantity:

Priority

Priority: 5

Restrictions: No Split Or Merge Restrictions

Current Inspection Order:

Current Inspection Order Steo

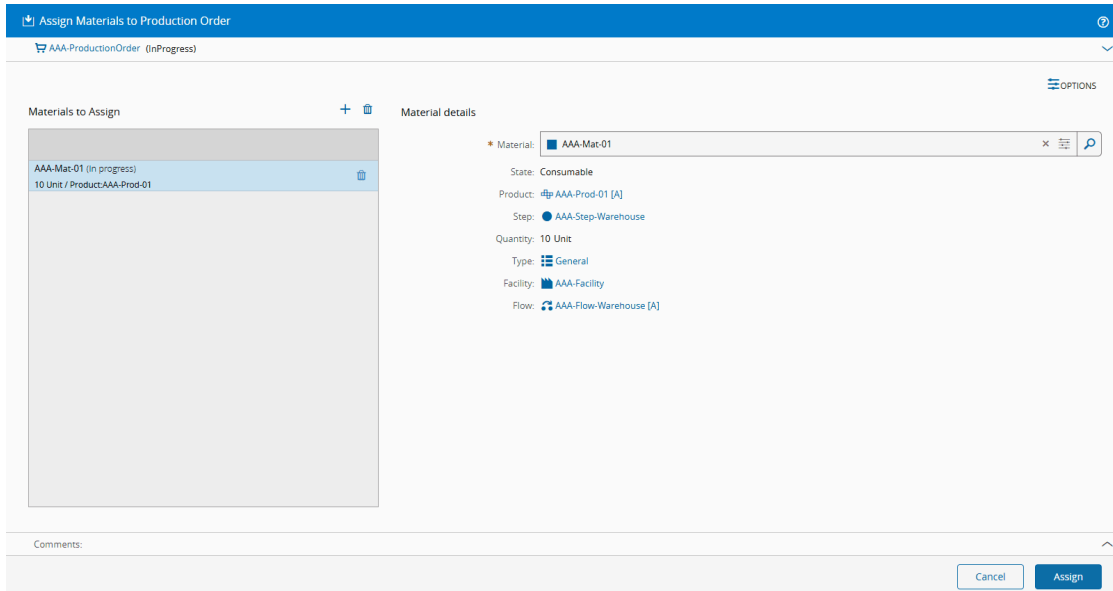
Attach

As Consumable

### Note

This step is only needed because in this example we set the assembly Type of the BOM as Automatic at Track Out.

- Next, in the **Production Order**, you will need to assign the consumption **Material** and then select **Assign**:



**Assign Materials to Production Order**

AAA-ProductionOrder (InProgress)

Materials to Assign

- AAA-Mat-01 (In progress)
- 10 Unit / Product:AAA-Prod-01

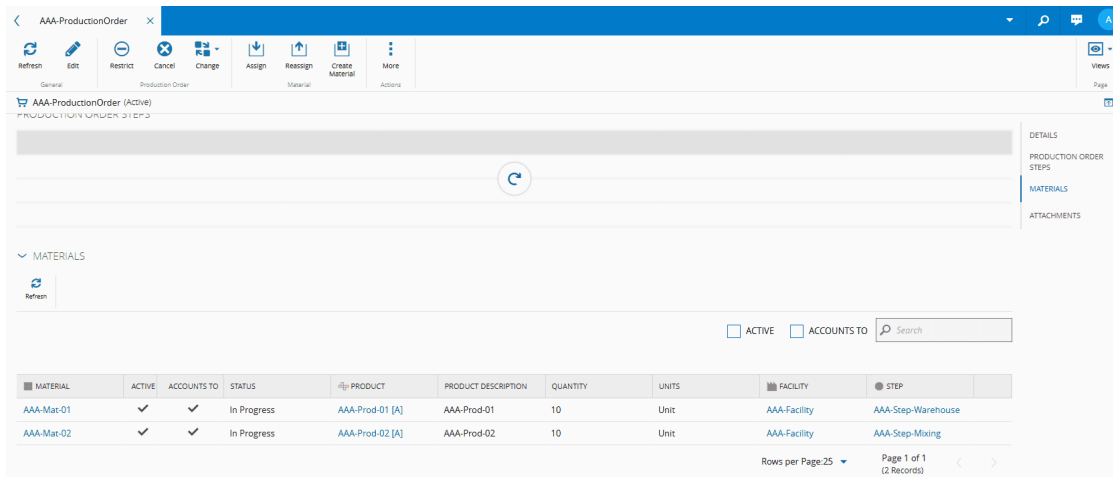
Material details

- Material: AAA-Mat-01
- State: Consumable
- Product: AAA-Prod-01 [A]
- Step: AAA-Step-Warehouse
- Quantity: 10 Unit
- Type: General
- Facility: AAA-Facility
- Flow: AAA-Flow-Warehouse [A]

Comments:

Cancel Assign

- At this point, you can see your consumption **Material** and production information in the **Materials** section of your **Production Order**:



AAA-ProductionOrder (Active)

PRODUCTION ORDER 31EP2

DETAILS

- PRODUCTION ORDER
- STEPS
- MATERIALS
- ATTACHMENTS

Refresh

ACTIVE ACCOUNTS TO Search

| MATERIAL   | ACTIVE | ACCOUNTS TO | STATUS      | PRODUCT         | PRODUCT DESCRIPTION | QUANTITY | UNITS | FACILITY     | STEP               |
|------------|--------|-------------|-------------|-----------------|---------------------|----------|-------|--------------|--------------------|
| AAA-Mat-01 | ✓      | ✓           | In Progress | AAA-Prod-01 [A] | AAA-Prod-01         | 10       | Unit  | AAA-Facility | AAA-Step-Warehouse |
| AAA-Mat-02 | ✓      | ✓           | In Progress | AAA-Prod-02 [A] | AAA-Prod-02         | 10       | Unit  | AAA-Facility | AAA-Step-Mixing    |

Rows per Page: 25 Page 1 of 1 (2 Records)

- You can now Dispatch and Track-In your main **Material** and verify the BOM information:

Dispatch and Track-In Material

RESOURCE — BOM

AAA-Mat-02 (Queued) / AAA-Prod-02 [A] (AAA-Prod-02) / AAA-Step-Mixing / 10 Unit

AAA-BOM-01 [A] (AutomaticAtTrackOut) / Units: Unit

BOM

| ITEM | LOCATION | POSITION | PRODUCT         | PRODUCT DESCRIPTION | STEP               | QUANTITY | REFERENCE | PRODUCT MIX | DISCRETE | REQUIRED QTY. | CURRENT QTY. | DELTA  |
|------|----------|----------|-----------------|---------------------|--------------------|----------|-----------|-------------|----------|---------------|--------------|--------|
| 1    |          |          | AAA-Prod-01 [A] | AAA-Prod-01         | AAA-Step-Warehouse | 1 Unit   | ✗         | ✗           | ✗        | 10 Unit       | 10 Unit      | 0 Unit |

Rows per Page: 25

Page 1 of 1 (1 Records)

Comments:

Cancel

Back

Track-In

Dispatch and Track-In Material

RESOURCE — BOM

AAA-Mat-02 (Queued) / AAA-Prod-02 [A] (AAA-Prod-02) / AAA-Step-Mixing / 10 Unit

AAA-BOM-01 [A] (AutomaticAtTrackOut) / Units: Unit

Consumable Feed: AAA-Feeder-01

AAA-Prod-01

| MATERIAL   | PRODUCT         | STEP               | PRIMARY QTY. | EXPIRATION DATE |
|------------|-----------------|--------------------|--------------|-----------------|
| AAA-Mat-01 | AAA-Prod-01 [A] | AAA-Step-Warehouse | 10 Unit      |                 |

Rows per Page: 25

Page 1 of 1 (1 Records)

Comments:

Cancel

Back

Track-In

14. Select **Track-In**.

15. When you then select **Track-Out**, the whole **Material** will be consumed, as can be seen in the **Production Order**:

AAA-ProductionOrder

Refresh

Edit

Restrict

Cancel

Change

Assign

Reassign

Create Material

More

General

Production Order

Material

Actions

Views

Page

AAA-ProductionOrder (Active)

PRODUCTION ORDER STEPS

Refresh

ACTIVE

ACCOUNTS TO

Search

| MATERIAL   | ACTIVE | ACCOUNTS TO | STATUS      | PRODUCT         | PRODUCT DESCRIPTION | QUANTITY | UNITS | FACILITY     | STEP            |
|------------|--------|-------------|-------------|-----------------|---------------------|----------|-------|--------------|-----------------|
| AAA-Mat-02 | ✓      | ✓           | In Progress | AAA-Prod-02 [A] | AAA-Prod-02         | 10       | Unit  | AAA-Facility | AAA-Step-Mixing |

Rows per Page: 25

Page 1 of 1 (1 Records)

DETAILS

PRODUCTION ORDER STEPS

MATERIALS

ATTACHMENTS

### Warning

If the consumable Material is not assigned to the Production Order, the system will return an error. This error is due to the dependency that is defined in the BOM which is used in the Production Order:

Track-Out Material

RESOURCE STATE RESULTS

AAA-Mat-02 (InProcess) / AAA-Prod-02 [A] (AAA-Prod-02) / AAA-Step-Mixing / 10 Unit

There was no Material of Product AAA-Prod-01 found in the Consumable Feeds of Resource AAA-Mixer-01

Comments:

Cancel

< Back

Next >

Track-Out





# Legal Information

## **Disclaimer**

The information contained in this document represents the current view of Critical Manufacturing on the issues discussed as of the date of publication. Because Critical Manufacturing must respond to changing market conditions, it should not be interpreted to be a commitment on the part of Critical Manufacturing, and Critical Manufacturing cannot guarantee the accuracy of any information presented after the date of publication. This document is for informational purposes only.

Critical Manufacturing makes no warranties, express, implied or statutory, as to the information herein contained.

## **Confidentiality Notice**

All materials and information included herein are being provided by Critical Manufacturing to its Customer solely for Customer internal use for its business purposes. Critical Manufacturing retains all rights, titles, interests in and copyrights to the materials and information herein. The materials and information contained herein constitute confidential information of Critical Manufacturing and the Customer must not disclose or transfer by any means any of these materials or information, whether total or partial, to any third party without the prior explicit consent by Critical Manufacturing.

## **Copyright Information**

All title and copyrights in and to the Software (including but not limited to any source code, binaries, designs, specifications, models, documents, layouts, images, photographs, animations, video, audio, music, text incorporated into the Software), the accompanying printed materials, and any copies of the Software, and any trademarks or service marks of Critical Manufacturing are owned by Critical Manufacturing unless explicitly stated otherwise. All title and intellectual property rights in and to the content that may be accessed through use of the Software is the property of the respective content owner and is protected by applicable copyright or other intellectual property laws and treaties.

## **Trademark Information**

Critical Manufacturing is a registered trademark of Critical Manufacturing.

All other trademarks are property of their respective owners.