



EMERSON EXCHANGE 2025

# ACCELERATING INNOVATION



ACCELERATING  
INNOVATION

**The Power of DeltaV Live and Batch  
Phases in a GMP Pharmaceutical  
Process Development Lab  
(Course 3-1358)**

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**Keyur (Kenny)  
Parikh**

## **Bristol Myers Squibb**

BMS is a global biopharmaceutical company whose mission is to discover, develop and deliver innovative medicines that help patients prevail over serious diseases.



**Rachel  
Dignon**

## **Control Associates, Inc.**

CAI is the Emerson Impact partner for the tri-state metro New York, New Jersey, and Connecticut region. We provide process control systems, valves, actuation, instrumentation, regulators, relief valves, asset reliability, systems integration, manufacturing execution systems, and data management solutions for industrial and commercial customers.

# Agenda

**Rachel**

**Background & Objectives**

**Rachel**

**Sampling & Results (Challenge 1)**

**Kenny**

**Material Movement & Verification (Challenge 2)**

**Kenny**

**Charging (Challenge 3)**

**Kenny/Rachel**

**Thank you & Questions**

# Background & Objective

- A pharmaceutical development lab space utilizing DeltaV Batch
  - Requires flexibility, speed, consistency, and compliance.
  - Although Batch control, EBR, and Batch data context are proven capabilities in commercial manufacturing environments, traditional installations are rigid and can be a barrier to using these same tools in the PD lab space.
- ✓ ***We will explore how DeltaV Live & DeltaV phases brings solutions to challenges in product development environment.***

# Sampling & Results

## Challenge 1

- Sample plans need to be set in the recipe, with flexibility to update at runtime.
- Taking samples and entering results often needs to straddle unit operations.

## Solution 1

- Flexibility to embed a sample plan in the recipe and modify during run time, including the ability to take samples separately from entering results.

# Sample Demand Components

## Phase

- The phase guides the taking of samples and entering results

## Support Module

- Stores information for up to 6 samples
- Coordinates information between phase and graphics

## Graphics

- Interactive interface used by the operator to take samples and enter results
  - Prompt banner
  - Faceplate

## Recipe Parameter

- The AD\_HOC recipe parameter determines if the remaining recipe parameters are to be determined at runtime or at recipe authoring.

# Running the Sample Demand Phase

**Reactor 100**

**SAMPLE** Batch Comments

48B\_RCT\_100\_SMPL

Sample ID	Sample Option
1	Sample/Result
2	Sample/Result
3	Sample/Result
4	Sample/Result
5	Sample/Result
6	Sample/Result

Upload

48B\_RCT\_100  
Batch ID: 131674892T20250128  
Operation: OP\_SAMPLE\_DEMAND\_1  
Phase: SAMPLE\_DEMAND Running

Unit Hold: [Icon]

Acknowledge when the sample ID, Option, Result Type are Entered and Click Upload PB

ACKNOWLEDGE

# Running the Sample Demand Phase

**Reactor 100**

**Batch Comments**

**48B\_RCT\_100\_SMPL**

Sample ID	Sample Option
1	IPC1 Results only
2	IPC2 Sample/Result
3	IPC3 Sample only
4	Sample/Result
5	Sample/Result
6	Sample/Result

**Upload**

**ACKNOWLEDGE**

Acknowledge when the sample ID, Option, Result Type are Entered and Click Upload PB

**48B\_RCT\_100**  
Batch ID: 131674892T20250128  
Operation: OP\_SAMPLE\_DEMAND\_1  
Phase: SAMPLE\_DEMAND Running

**VAC / PRESS CONTROLLER**  
SP 1075 mbar PV 1013 mbar

**TEMPERATURES**  
JACKET TI.111 0.0 °C  
BAFFLE TI.160 ???... %  
OUTLET TI.150 ???... %

**TEMP. CONTROLLER**  
SP 20.0 °C PV 30.0 °C

**BATCH** | **JACKET**

WI.562 PV 21.0 KG

Low Hood DP

Low Flow

# Running the Sample Demand Phase

**Reactor 100**

**48B\_RCT\_100\_SMPL**

Sample ID	Pull Sample	Enter Result	Sample Results
IPC1	[Pull Sample]	[Enter Result]	UNDEFINED
Status: Waiting for Results			Sample Option: Results only
IPC2	[Pull Sample]	[Enter Result]	UNDEFINED
Status: Awaiting Sample to be Pulled			Sample Option: Sample/Result
IPC3	[Pull Sample]	[Enter Result]	N/A
Status: Awaiting Sample to be Pulled			Sample Option: Sample only

**Process Parameters:**

- VAC / PRESS CONTROLLER:** SP 1075 mbar, PV 1013 mbar
- TEMPERATURES:**
  - JACKET TI.111: 0.0 °C
  - BAFFLE TI.160: ???... %
  - OUTLET TI.150: ???... %
- TEMP. CONTROLLER:** SP 20.0 °C, PV 30.0 °C
- WI.562:** PV 21.0 KG
- P.111:** UNAVAIL
- S.111:** PV 30.0 %
- TT.211:** PV 0.0 %
- EH 100:** 0.00 % (Low Flow)

**Batch Information:**

- Batch ID: 131674892T20250128
- Operation: OP\_SAMPLE\_DEMAND\_1
- Phase: SAMPLE\_DEMAND Running

**Instruction:** Select Pull Sample or Enter Result

# Running the Sample Demand Phase

**Reactor 100**

Batch Comments

48B\_RCT\_100\_SMPL

Sample ID	Pull Sample	Enter Result	Sample Results
IPC1	[Pull Sample]	[Enter Result]	UNDEFINED
Status: Waiting for Results			Sample Option: Results only
IPC2	[Pull Sample]	[Enter Result]	UNDEFINED
Status: Awaiting Sample to be Pulled			Sample Option: Sample/Result
IPC3	[Pull Sample]	[Enter Result]	N/A
Status: Awaiting Sample to be Pulled			Sample Option: Sample only

Low Hood DP

VAC / PRESS CONTROLLER  
SP 1075 mbar PV 1013 mbar

TEMPERATURES  
JACKET TI.111 0.0 °C  
BAFFLE TI.160 ???... %  
OUTLET TI.150 ???... %

TEMP. CONTROLLER  
SP 20.0 °C PV 30.0 °C

BATCH JACKET

WI.562 PV 21.0 KG

48B\_RCT\_100  
Batch ID: 131674892T20250128  
Operation: OP\_SAMPLE\_DEMAND\_1  
Phase: SAMPLE\_DEMAND Running

Unit Hold: [Icon]

Pull Sample IPC2, acknowledge when complete

ACKNOWLEDGE  
CANCEL

# Running the Sample Demand Phase

**Reactor 100**

**48B\_RCT\_100\_SMPL**

Sample ID	Sample Results
IPC1	UNDEFINED
IPC2	UNDEFINED
IPC3	N/A

Status: Waiting for Results (IPC1, IPC2)  
Status: Awaiting Sample to be Pulled (IPC3)

Sample Option: Results only (IPC1)  
Sample Option: Sample/Result (IPC2)  
Sample Option: Sample only (IPC3)

**Buttons:** Pull Sample, Enter Result

**Process Data:**

- 48B\_RCT\_100
- Batch ID: 131674892T20250128
- Operation: OP\_SAMPLE\_DEMAND\_1
- Phase: SAMPLE\_DEMAND Running
- Unit Hold: [Icon]

**Process Parameters:**

- TT.211 PV 0.0 %
- P.111 UNAVAIL
- S.111 PV 30.0 %
- WI.562 PV 21.0 KG

**Controllers:**

- VAC / PRESS CONTROLLER: SP 1075 mbar, PV 1013 mbar
- TEMPERATURES: JACKET Tl.111 0.0 °C, BAFFLE Tl.160 ???... %, OUTLET Tl.150 ???... %
- TEMP. CONTROLLER: SP 20.0 °C, PV 30.0 °C

**Bottom Banner:** Select Pull Sample or Enter Result

# Running the Sample Demand Phase

SAMPLE

## Reactor 100

Batch Comments

Confirm

Parameter and Value  
48B\_RCT\_100\_SM/CHECK\_LOGON/CONFIR...  
1

Confirm Comment

User: RACHEL  
Password:

Errors

48B\_RCT\_100\_SMPL

Sample ID	Pull Sample	Enter Result	Sample Results
IPC1	<input type="button" value="Pull Sample"/>	<input type="button" value="Enter Result"/>	UNDEFINED
Status: Waiting for Results		Sample Option: Results only	
IPC2	<input type="button" value="Pull Sample"/>	<input type="button" value="Enter Result"/>	UNDEFINED
Status: Waiting for Results		Sample Option: Sample/Result	
IPC3	<input type="button" value="Pull Sample"/>	<input type="button" value="Enter Result"/>	N/A
Status: Awaiting Sample to be Pulled		Sample Option: Sample only	

48B\_RCT\_100

Batch ID:  
131674892T20250128

Operation:  
OP\_SAMPLE\_DEMAND\_1

Phase:  
SAMPLE\_DEMAND  
Running

Unit Hold:

Are the results for the sample: IPC1 within tolerance?

# Running the Sample Demand Phase

**Reactor 100**

**48B\_RCT\_100\_SMPL**

Sample ID	Pull Sample	Enter Result	Sample Results
IPC1	Pull Sample	Enter Result	PASS
IPC2	Pull Sample	Enter Result	FAIL
IPC3	Pull Sample	Enter Result	N/A

**Status: Sample Passed**      **Sample Option: Results only**

**Status: Failed - Awaiting Resample**      **Sample Option: Sample/Result**

**Status: Awaiting Sample to be Pulled**      **Sample Option: Sample only**

**48B\_RCT\_100**  
Batch ID: 131674892T20250128  
Operation: OP\_SAMPLE\_DEMAND\_1  
Phase: SAMPLE\_DEMAND Running

Unit Hold: [Icon]

Select Pull Sample or Enter Result

# Running the Sample Demand Phase

**Reactor 100**

**48B\_RCT\_100\_SMPL**

Sample ID	Sample Results
IPC1	PASS
IPC2	FAIL
IPC3	N/A

Status: Sample Passed (IPC1), Failed - Awaiting Resample (IPC2), Awaiting Sample to be Pulled (IPC3)

Sample Option: Results only (IPC1), Sample/Result (IPC2), Sample only (IPC3)

**Unit Information:**

- Unit: 48B\_RCT\_100
- Batch ID: 131674892T20250128
- Operation: OP\_SAMPLE\_DEMAND\_1
- Phase: SAMPLE\_DEMAND Running

**Process Data:**

- WI.562 PV: 21.0 KG
- S.111 PV: 30.0 %
- TT.211 PV: 0.0 %
- P.111 UNAVAIL
- EH 100 0.00 %

**Controllers:**

- VAC / PRESS CONTROLLER: SP 1075 mbar, PV 1013 mbar
- TEMPERATURES: JACKET TI.111 0.0 °C, BAFFLE TI.160 ???... %, OUTLET TI.150 ???... %
- TEMP. CONTROLLER: SP 20.0 °C, PV 30.0 °C

**Buttons:** ACKNOWLEDGE, CANCEL

**Instruction:** Pull Sample IPC2-1, acknowledge when complete

# Running the Sample Demand Phase

**Reactor 100**

**48B\_RCT\_100\_SMPL**

Sample ID	Sample Results
IPC1	PASS
IPC2	FAIL
IPC3	N/A

**Status:** Sample Passed (IPC1), Waiting for Results of Resample (IPC2), Awaiting Sample to be Pulled (IPC3)

**Sample Option:** Results only (IPC1), Sample/Result (IPC2), Sample only (IPC3)

**Are the results for the sample: IPC2-1 within tolerance?**

**PASS**

**FAIL**

# Running the Sample Demand Phase

**Reactor 100**

**48B\_RCT\_100\_SMPL**

Sample ID	Sample Results
IPC1	PASS
IPC2	PASS
IPC3	N/A

Status: Sample Passed (IPC1, IPC2)  
Status: Sample Taken (IPC3)

Sample Option: Results only (IPC1)  
Sample Option: Sample/Result (IPC2)  
Sample Option: Sample only (IPC3)

**ACKNOWLEDGE, Ending phase without passing results.**

# Sample Demand Reporting

PRP_TEXT	Report	. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
PRP_TEXT	Report	. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
PRP_TEXT	Report	. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
GRP_TEXT	Report	PROMPT: Pull Sample IPC2, acknowledge when complete. USERNAME: RACHEL. ANSWER: ACKNOWLEDGE
GRP_TEXT	Report	PROMPT: Are the results for the sample: IPC1 within tolerance?. USERNAME: RACHEL. ANSWER: PASS
CRP_TEXT	Report	Sample Description: IPC1 Result: PASS OPERATOR:RACHEL VERIFIED: N/A
GRP_TEXT	Report	PROMPT: Are the results for the sample: IPC2 within tolerance?. USERNAME: RACHEL. ANSWER: FAIL
CRP_TEXT	Report	Sample Description: IPC2 Result: FAIL OPERATOR:RACHEL VERIFIED: N/A
GRP_TEXT	Report	PROMPT: Pull Sample IPC2-1, acknowledge when complete. USERNAME: RACHEL. ANSWER: ACKNOWLEDGE
GRP_TEXT	Report	PROMPT: Are the results for the sample: IPC2-1 within tolerance?. USERNAME: RACHEL. ANSWER: PASS
CRP_TEXT	Report	Sample Description: IPC2 Result: PASS OPERATOR:RACHEL VERIFIED: N/A
GRP_TEXT	Report	PROMPT: Pull Sample IPC3, acknowledge when complete. USERNAME: RACHEL. ANSWER: ACKNOWLEDGE
B_USER_NAME	Report	RACHEL

# Material Movement & Verification

## Challenge 2

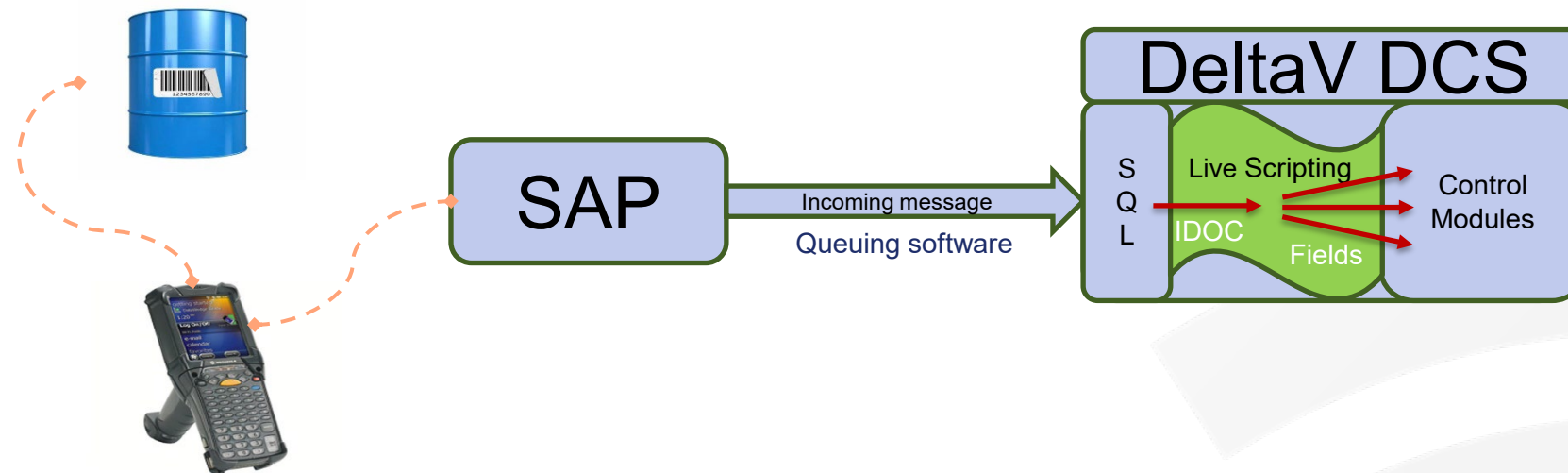
- All material charges need to coordinate with the ERP to provide quality checks and tracking, ensuring material is appropriate and in good status.

## Solution 2

- Connectivity to communicate with the ERP system facilitated through DeltaV Live scripting and SQL (incoming and outgoing messages to DeltaV).

# Material Availability Check

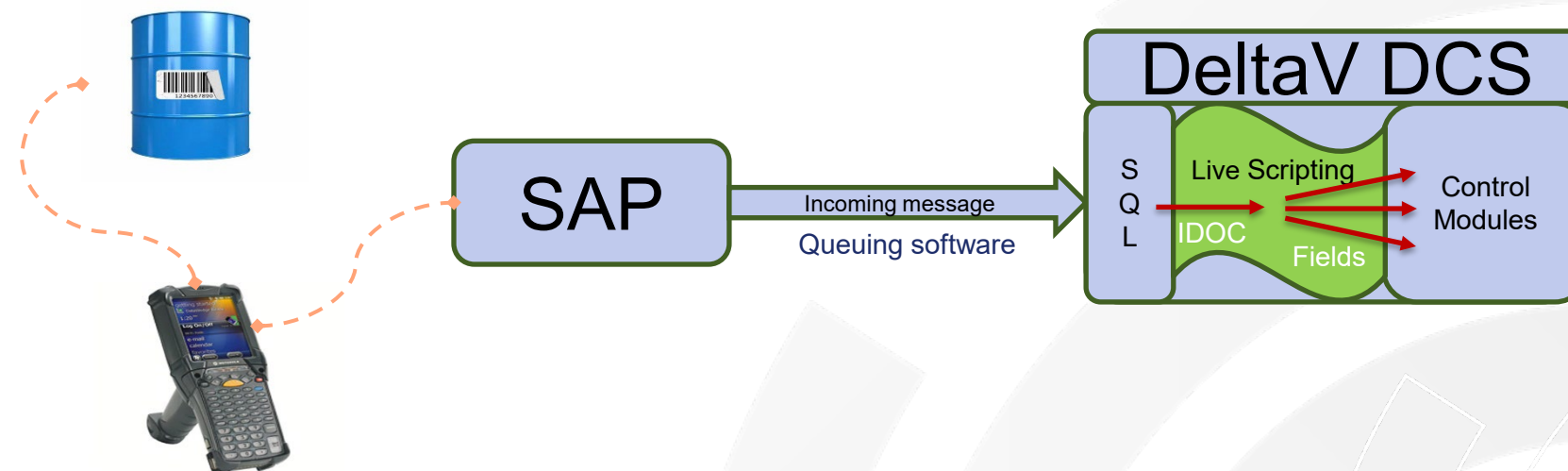
- IDOC Scan
  - SAP sends info of material scan to SQL database
  - Stored procedure parses the string components into a SQL database table for MAC transactions



Complete IDOC (scan) for material 1128099, then ACKNOWLEDGE. ACKNOWLEDGE

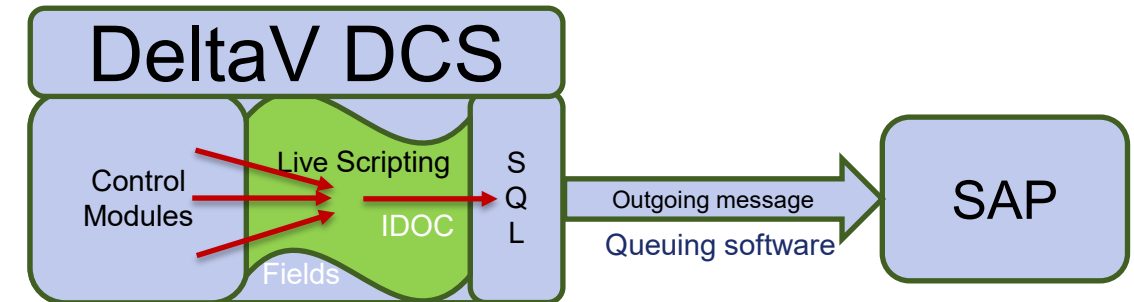
# Material Availability Check

- DeltaV Live Scripting for MAC Transaction
  - Script reads the unit name and PO number
  - Query sent to SQL to retrieve the most recent IDOC scan info for the unit's current PO number
  - The returned string is split into an array of the table entries and saved to variables within the script
  - The script checks that the SAP ID of the scanned material matches that of the expected material before saving the data to the unit's support module
  - The script further checks that the material is listed on the PO
  - A query is sent back to the SQL database to update the MAC table, changing the status of the MAC entry from "NEW" to "CONSUMED"



# Goods Issue or Goods Receipt

- DeltaV Live Scripting for GI (or GR) Transaction
  - Read the material parameters from the support module
  - Modify the message parameter values as necessary
  - Outgoing message is constructed by concatenating the message parameters and spacers
  - A query is sent to the SQL database calling a stored procedure, passing the goods issue (or goods receipt) message and related parameters to it



Click ACKNOWLEDGE to send Goods Issue message to SAP.

ACKNOWLEDGE

# Charging

## Challenge 3

- Batch execution must accommodate unexpected charges, giving supervisors the ability to specify quantity or material at runtime.
- Unexpected charges need the same quality assurance as planned material charges.

## Solution 3

- Interactive interface to charge materials 'on-demand'.

# Charge Demand Components

## Phase

- The phase guides the charging of multiple materials

## Support Module

- Stores information for up to 6 material charges
- Coordinates information between phase and graphics

## Graphics

- Interactive interface used by the operator to charge materials
  - Prompt banner
  - Faceplate

## Recipe Parameter

- The AD\_HOC recipe parameter determines if the remaining recipe parameters are to be determined at runtime or at recipe authoring.

# Running the Charge Demand Phase

**Reactor 100**

**CHARGE**

Batch Comments

Material #	Material Qty	SAP Option	Scale #	Status	Comment
1	0.00 KG	NON_SAP MAT	NONE	CHARGE	MAC Not configured
2	0.00 KG	NON_SAP MAT	NONE	CHARGE	MAC Not configured
3	0.00 KG	NON_SAP MAT	NONE	CHARGE	MAC Not configured
4	0.00 KG	NON_SAP MAT	NONE	CHARGE	MAC Not configured
5	0.00 KG	NON_SAP MAT	NONE	CHARGE	MAC Not configured
6	0.00 KG	NON_SAP MAT	NONE	CHARGE	MAC Not configured

48B\_RCT\_100  
Batch ID: 945678335T20250128  
Operation: OP\_CHARGE\_DEMAND\_1  
Phase: CHARGE\_DEMAND Running

VAC / PRESS CONTROLLER  
SP 1075 mbar PV 1013 mbar

TEMPERATURES  
JACKET TI.111 0.0 °C  
BAFFLE TI.160 ????. %  
OUTLET TI.150 ????. %

TEMP. CONTROLLER  
SP 20.0 °C PV 30.0 °C

BATCH JACKET

Acknowledge when the Material No, Quantity, SAP option are Entered

ACKNOWLEDGE

# Running the Charge Demand Phase

← → ↶ ↷

CHARGE

## Reactor 100

Batch Comments

48B\_RCT\_100\_CHRG

**48B\_RCT\_100\_CHRG**

Material #	Material Qty	SAP Option	Scale #	Status
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE MAC Not configured
Comment:				
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE MAC Not configured
Comment:				
3	0.00 KG	NON_SAP MAT	NONE	CHARGE MAC Not configured
Comment:				
4	0.00 KG	NON_SAP MAT	NONE	CHARGE MAC Not configured
Comment:				
5	0.00 KG	NON_SAP MAT	NONE	CHARGE MAC Not configured
Comment:				
6	0.00 KG	NON_SAP MAT	NONE	CHARGE MAC Not configured
Comment:				

48B\_RCT\_100

Batch ID:  
945678335T20250128

Operation:  
OP\_CHARGE\_DEMAND\_1

Phase:  
CHARGE\_DEMAND  
Running

Unit Hold:

Acknowledge when the Material No, Quantity, SAP option are Entered

ACKNOWLEDGE

VAC / PRESS CONTROLLER

SP 1075 mbar PV 1013 mbar

TEMPERATURES

JACKET TI.111 0.0 °C

BAFFLE TI.160 ???... %

OUTLET TI.150 ???... %

TEMP. CONTROLLER

SP 20.0 °C PV 30.0 °C

BATCH	JACKET
-------	--------

# Running the Charge Demand Phase

**Reactor 100**

Batch Comments

48B\_RCT\_100\_CHRG

Material #	Material Qty	SAP Option	Scale #	CHARGE	MAC	Status
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE	MAC	Awaiting charge
Comment:						
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE	MAC	Awaiting charge
Comment:						

48B\_RCT\_100  
Batch ID: 945678335T20250128  
Operation: OP\_CHARGE\_DEMAND\_1  
Phase: CHARGE\_DEMAND Running

Unit Hold: [Icon]

VAC / PRESS CONTROLLER  
SP 1075 mbar PV 1013 mbar

TEMPERATURES  
JACKET TI.111 0.0 °C  
BAFFLE TI.160 ???... %  
OUTLET TI.150 ???... %

TEMP. CONTROLLER  
SP 20.0 °C PV 30.0 °C

BATCH JACKET

Select the CHARGE button on the pop-up for the material you would like to charge.

ACKNOWLEDGE

# Running the Charge Demand Phase

**Reactor 100**

Batch Comments

CHARGE

48B\_RCT\_100\_CHRG

Material #	Material Qty	SAP Option	Scale #	CHARGE	MAC	Status
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE	MAC	Charging
Comment:						
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE	MAC	Awaiting charge
Comment:						

48B\_RCT\_100  
Batch ID: 945678335T20250128  
Operation: OP\_CHARGE\_DEMAND\_1  
Phase: CHARGE\_DEMAND Running

Unit Hold: [Icon]

Complete IDOC (scan) for material 1128099, then ACKNOWLEDGE.

ACKNOWLEDGE

# Running the Charge Demand Phase

**Reactor 100**

CHARGE

Batch Comments

Material #	Material Qty	SAP Option	Scale #	CHARGE	MAC	Status
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE	MAC	Charging
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE	MAC	Awaiting charge

**Material Availability Check**

Material Number: 1128099  
 Material Description: N,N-DIMETHYLFORMAMIDE  
 Batch Number: AAE2912  
 Quantity Available: 148.72  
 UOM: KG  
 Work Center: B48  
 Plant: 1487  
 Storage Location: 0001

48B\_RCT\_100  
 Batch ID: 945678335T20250128  
 Operation: OP\_CHARGE\_DEMAND\_1  
 Phase: CHARGE\_DEMAND Running

Unit Hold: [Icon]

Batch AAE2912 of material 1128099 is available. Click the MAC button on the popup to verify the info, then CONFIRM info or RESCAN.

CONFIRM  
RESCAN

# Running the Charge Demand Phase

**Reactor 100**

**CHARGE** Batch Comments

Material #	Material Qty	SAP Option	Scale #	Status	MAC	Status
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE	MAC	Charging
Comment:						
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE	MAC	Awaiting charge
Comment:						

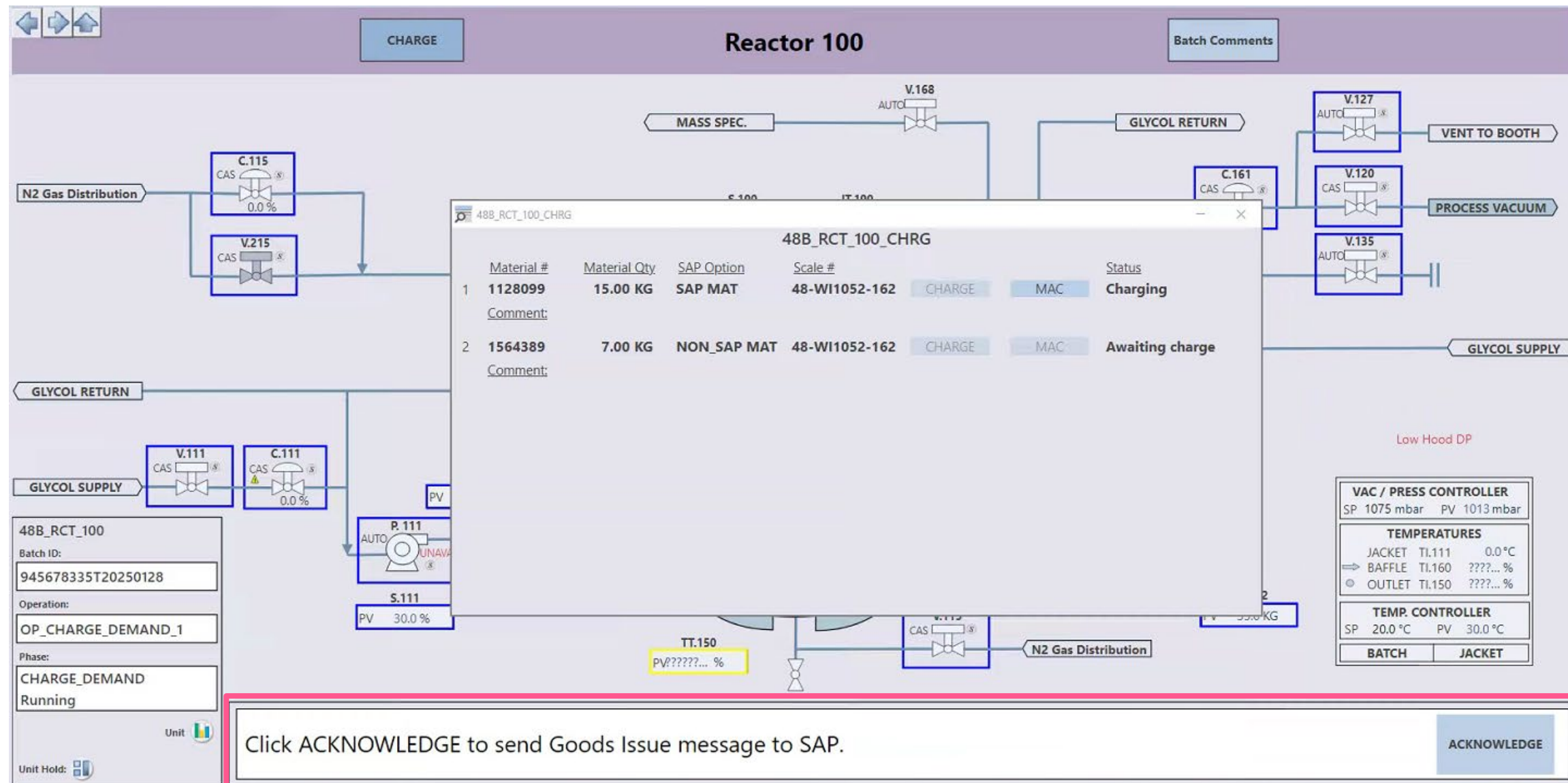
Are you binding a scale for the material charge?

# Running the Charge Demand Phase

**Reactor 100**

Batch Comments

CHARGE



Material #	Material Qty	SAP Option	Scale #	Status	MAC	Charging
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE	MAC	Charging
Comment:						
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE	MAC	Awaiting charge
Comment:						

48B\_RCT\_100  
Batch ID: 945678335T20250128  
Operation: OP\_CHARGE\_DEMAND\_1  
Phase: CHARGE\_DEMAND Running

VAC / PRESS CONTROLLER  
SP 1075 mbar PV 1013 mbar

TEMPERATURES  
JACKET TI.111 0.0 °C  
BAFFLE TI.160 ???... %  
OUTLET TI.150 ???... %

TEMP. CONTROLLER  
SP 20.0 °C PV 30.0 °C

BATCH JACKET

Click ACKNOWLEDGE to send Goods Issue message to SAP.

ACKNOWLEDGE

# Running the Charge Demand Phase

**Reactor 100**

Batch Comments

48B\_RCT\_100\_CHRG

Material #	Material Qty	SAP Option	Scale #	Status
1 1128099	15.00 KG	SAP MAT	48-WI1052-162	CHARGE MAC Charge completed
2 1564389	7.00 KG	NON_SAP MAT	48-WI1052-162	CHARGE MAC Awaiting charge

48B\_RCT\_100  
Batch ID: 945678335T20250128  
Operation: OP\_CHARGE\_DEMAND\_1  
Phase: CHARGE\_DEMAND Running

Unit

Unit Hold:

Select the CHARGE button on the pop-up for the material you would like to charge.

ACKNOWLEDGE

# Charge Demand Reporting

GRP_TEXT	Report	PROMPT: Select the CHARGE button on the pop-up for the material you would like to charge.. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
PRP_TEXT	Report	Complete IDOC (scan) for material 1128099, then ACKNOWLEDGE. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED. USER PERFORMING SCAN = RACHEL.
GRP_TEXT	Report	PROMPT: Batch AAE2912 of material 1128099 is available. Click the MAC button on the popup to verify the info, then CONFIRM info or RESCAN.. USERNAME: RACHEL. ANSWER: CONFIRM
GRP_TEXT	Report	PROMPT: Are you binding a scale for the material charge?. USERNAME: RACHEL. ANSWER: YES
GRP_TEXT	Report	PROMPT: Zero scale. Acknowledge when complete.. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
PRP_TEXT	Report	. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
PRP_TEXT	Report	. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
GRP_TEXT	Report	PROMPT: Charge material: ACKNOWLEDGE when complete.. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
GRP_TEXT	Report	PROMPT: Material 1128099 charged. Target: 15 KG. Actual 14.9 KG. Acknowledge to continue.. USERNAME: RACHEL. ANSWER: ACKNOWLEDGED
ARP_TEXT	Report	Charge: Material Description:N,N-DIMETHYLFORMAMIDE. SAP Number:1128099. Charged Quantity:14.9. User Name:RACHEL

# Thank You

*Any Questions???*



## Course 3-1358

### Find More Information

For more information, please contact us

### Contacts

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