

Da Vinci Smart Manufacturing

BRD S06.04 Reports Spout Analysis

Version	Created/Modified by	Description	Date
1.0	Leopoldo Rivera Sahana Badal	S06.04 First draft	6/06/2025

1. Overview.....	3
2. Report Configuration Interface (Setup View)	3
2.1 Variant Name Selection	3
2.2 Report Filters (Mandatory fields marked with *).....	4
2.3 KPI Selection.....	4
2.4 Action Buttons	5
3. Report Output View	5
3.1 Filters Summary Section	5
3.2 KPI Visualization Section.....	6
3.3 Report Data (Tabular Format)	6
3.4 Notes Section	7
3.5 Navigation – Back to Configuration	7
4. Report Actions	8
4.1 Print	8
4.2 Save Variant.....	8
4.3 Clone Variant	8
4.4 Delete Variant	9
5. Edge Cases & Validations.....	10

This document outlines the detailed specifications for the Spout Analysis Report module. The module enables users to configure, generate, manage, and share reports that analyze spout analysis records across furnaces. This supports decision-making, efficiency tracking, and auditing through dynamic filters, KPI selection, and export capabilities.

1. Overview

The module consists of:

- Report Configuration Interface (Setup View)
- Report Output View (Generated Report)
- Variant Management System (for saved configurations)
- Export and Print functionalities

2. Report Configuration Interface (Setup View)

2.1 Variant Name Selection

- A dropdown labeled “**Variant Name**” is provided at the top.
 - User selects the Variant ID from a single select dropdown
 - Mandatory - No
 - Default value - No
 - Field Type - Single Select Dropdown Values: All Variants saved (Public and Private). **Dropdown Structure:**
 - **My Variants**

- Private
- Public (shared icon)
- **Public Variants** (created by others)
 - Validation - No
 - **Permissions:**
 - Only the creator can edit, delete, or update their variant.
 - Other users can view or clone public variants.
- Upon selecting a variant, previously saved filters and KPI selections are auto-populated.

2.2 Report Filters (*Mandatory fields marked with **)

Filter	Type	Description
Furnace ID*	Multi-select dropdown	Lists all active furnaces assigned to user or organization.
Date Range*	Calendar picker	From and To date selectors.
Element ID*	Multi-select dropdown	Lists the materials for which Analysis records are present

Filter Behavior:

- Default values are empty; required fields must be selected to proceed.
- All Filter drop downs should be sorted alphabetically / numerically

2.3 KPI Selection

- KPI checkboxes/toggles are listed for selection.
- Backend provides the available KPIs per report.
- KPIs are not mandatory and report can be generated without selecting any.
- KPI Permissions Logic
 - **Selectable KPIs:** A user can only **select** KPIs for which their role has explicit permission.
 - **Visible but Disabled:** KPIs outside the user's permission scope will still be **visible** in the interface but will appear **disabled** (e.g., grayed out) and **cannot be selected**.

- **Max 3 KPIs can be selected.**
 - If a user selects more than 3, an inline validation appears: “*You can select up to 3 KPIs only.*”
- Each KPI has a **default chart type** (bar, line, pie, etc.) configured by backend.
- In the **generated report screen**, users can change the chart type per KPI using a dropdown.

2.4 Action Buttons

Button	Function
Generate Report	Validates inputs and transitions to Report Output View.
Reset	Clears all filters and KPI selections to default state.

The screenshot shows the 'Spout Analysis' interface. On the left is a vertical sidebar with various icons. The main area is titled 'Spout Analysis'. It contains a 'Variant Name' dropdown labeled 'Select Variant Name'. Below it is a 'Filters' section with three fields: 'Furnace ID*', 'Date Range*', and 'Element ID*'. Each field has a dropdown menu: 'Select Furnace ID', 'Select Date Range', and 'Select Element ID'. At the bottom right of the main area is a 'Generate' button.

3. Report Output View

Upon clicking **Generate Report**, the system transitions to a new screen with the following sections:

3.1 Filters Summary Section

- Displays all selected filters and metadata

Fields include:

1. Variant Name (default: *Untitled* until saved)
 - a. Min - 1 and Max - 30 characters, alphanumeric, Only '-' and '_' is allowed, Single space is allowed in between the words, No leading spaces allowed
 - b. **Edit Icon** (✎): Appears for saved variants created by the user.
 - c. Enables inline editing of Variant Name and Access Modifier (Private/Public).
 - d. A **Save** button confirms updates.
2. Furnace ID - view only
3. Date Range (From - To) - view only
4. Element ID - view only
5. **Executed On** – *Displayed only in print view; not saved in variant.* view only
6. **Executed By** – *Displayed only in print view; not saved in variant.* view only

3.2 KPI Visualization Section

- KPIs selected are shown in graphical format.

Features:

- KPIs can be **removed** via a close (x) button on hover.
- KPIs can be **reordered** via drag-and-drop.
- KPI metadata and units are displayed.
- Users can **change the chart type per KPI** via dropdown (Gauge, Bar Chart, Line Chart and Pie Chart).

3.3 Report Data (Tabular Format)

- Data displayed based on filters and granularity.
- It will have the following columns
 - Date
 - Furnace ID
 - Element ID
 - Element Concentration (%)

Table Features:

- Configurable columns via “Add Columns” menu
- Sorting and rearranging columns via drag-and-drop
- Pagination for large datasets
- Export to Excel (XLSX). File Name “MMDDYY_SpoutAnalysisReport”

The screenshot shows a software interface titled "Spout Analysis". At the top, there are filter settings: Variant Name (Untitled), Furnace ID (11), Date Range (15/10/2024 - 16/9/2024), Element ID (Al, Ca, Fe, Ti), Executed by (sbadal | Sahana Badal), and Executed on (15/10/2024 | 3:15 pm). Below the filters is a table titled "Report" with columns: Date, Furnace ID, Element ID, and Element Concentration (%). The data in the table is as follows:

Date	Furnace ID	Element ID	Element Concentration (%)
1/1/2025	1	Al	10
1/1/2025	1	Fe	1.5
1/1/2025	2	Ca	15
1/2/2025	2	Ni	10
1/2/2025	3	Ni	10
1/2/2025	1	Al	1.5
1/3/2025	1	Al	10
1/3/2025	3	Al	10
1/4/2025	1	Ni	12
1/4/2025	1	Al	10

At the bottom, it says "Showing 10 of 80" and "Rows Per Page : 10".

3.4 Notes Section

- Free-text input area for user insights. All (Including special characters), 100 characters
- Not saved with variant — intended for print inclusion only.

This screenshot is identical to the one above, showing the Spout Analysis report view with the same data table. However, it includes a new section at the bottom labeled "User Notes" with a text input field containing the placeholder "Enter your notes".

3.5 Navigation – Back to Configuration

- A Back button appears in the report view.

- Clicking it returns the user to the **Setup View**, retaining all previous filter and KPI selections.
- Ensures seamless editing without re-entering data.

4. Report Actions

4.1 Print

- Exports the entire report as PDF.
- User selects sections to include:
 - Filter section
 - Notes section
 - Specific pages of data

4.2 Save Variant

- Saves current report configuration.
- Required fields:
 - Report Name
 - Access Modifier (Private/Public)
- Only the creator can edit or delete saved variants.

The screenshot shows the Spout Analysis interface with the following details:

- Header:** Spout Analysis, Nora James, Save Variant button.
- Filters:** Variant Name (Untitled), Furnace ID (11), Date Range (15/10/2024 - 16/9/2024), Element ID (Al, Ca, Fe, Ti), Executed by (sbadal | Sahana Badal), Executed on (15/10/2024 | 3:15 pm).
- Report Section:** A table with columns: Date, Furnace ID, Element ID. The table contains 10 rows of data.
- Save Report Variant Dialog:** An orange modal is open over the report table, containing fields for "Enter Variant Name" (empty), "Public" (unchecked), and "Save" (green checkmark).
- Page Bottom:** Showing 10 of 80, Row Per Page: 10.

4.3 Clone Variant

- Clones any saved variant (private or public).
- Confirmation message appears:

“Are you sure you want to clone this variant? The cloned version will open in edit mode and must be saved separately.”

- Opens the cloned configuration in edit mode with name defaulted to *Untitled*.

Spout Analysis

Filters

Variant Name	Furnace ID	Date Range	Element ID	Executed by	Executed on
Variant 1	11	15/10/2024 - 16/9/2024	Al, Ca, Fe, Ti	sbadal Sahana Badal	15/10/2024 3:16 pm

Report

Date	Furnace ID	Element ID	Element Concentration (%)
1/1/2025	1	Al	10
1/1/2025	1	Fe	
1/1/2025	2	Ca	
1/2/2025	2	Ni	10
1/2/2025	3	Ni	10
1/2/2025	1	Al	1.5
1/3/2025	1	Al	10
1/3/2025	3	Al	10
1/4/2025	1	Ni	12
1/4/2025	1	Al	10

Showing 10 of 80

User Notes

4.4 Delete Variant

- Available for user-created variants.
- Delete via dropdown or trash icon with confirmation prompt.
 - “Are you sure you want to delete this variant “Variant Name”?

Spout Analysis

Filters

Variant Name	Furnace ID	Date Range	Element ID	Executed by	Executed on
Variant 1	11	15/10/2024 - 16/9/2024	Al, Ca, Fe, Ti	sbadal Sahana Badal	15/10/2024 3:16 pm

Report

Date	Furnace ID	Element ID	Element Concentration (%)
1/1/2025	1	Al	10
1/1/2025	1	Fe	
1/1/2025	2	Ca	
1/2/2025	2	Ni	10
1/2/2025	3	Ni	10
1/2/2025	1	Al	1.5
1/3/2025	1	Al	10
1/3/2025	3	Al	10
1/4/2025	1	Ni	12
1/4/2025	1	Al	10

Showing 10 of 80

User Notes

5. Edge Cases & Validations

Scenario	Expected Behaviour
Required filter missing	Prompt user to complete all mandatory fields
Deleting a variant in use	Show confirmation and warn about unsaved changes when traversing to another module
Selecting public variant	Load values in read-only mode unless cloned
No KPIs selected	Section remains empty; no validation error
Selecting > 3 KPIs	Show inline warning and prevent further selections