



General Description

This dashboard has been developed by Supply Chain Excellence and SBS to provide visibility on inventories. Visibility on inventories is a key element to start inventory optimization projects and ensure sustainability in the improvements.

General features:

- The tool provides graphical views, analytical functions, possibility to extract to Excel.
- Ability to make a selection on inventory by month (end of Month inventory situation).
- Visibility of inventory at each distribution point and globally.
- For a given GBU, visibility by Zone/Company/Plant/Material (aggregation and dis-aggregation possible).
- Ability to select a material or a group of material (from material number to product hierarchy/commercial product)
- Make distinction between Finished Goods, Intermediates, Raw Materials.

Scope:

- The tool covers Finished Goods, Trading Goods, Intermediates, Raw Materials. The distinction between the different material types is done according to the **SAP valuation class** (Accounting 1 view of material master file MM03).
 - WP1: Z150 CS Finished product Z100 CS Raw materials, Z130 CS Trading goods, Z140 CS Intermediates.
 - PF1: Z000 Main raw materials, Z007 Main raw materials-import, Z049 Interplant raw materials, Z050 Other raw materials, Z053 Semi finished products, Z061 Semi finished products, Z100 Finished goods manuf, Z101 Finished goods purch.
- Packaging and Spare Parts are not included in this dashboard.
- Materials without conversion factor to KG/TON in SAP material master file are not taken into consideration.
- Data available for the 2 past full years.

Authorization

- Authorization & Rights are assigned at GBU level.
 - All the accesses must be validated by the process Owner Benoit HORNYAK

Refresh

- The dashboard is refreshed each weekend for the current Month and Month - 1

Target users

- Supply Chain Family employees in charge of Inventory Management.

Tabs	Description	Key figures	Description
Overview	Stock value by Zone / Country / Plant / Stock Type / Valuation Class	▪ Average Inventory Value	
Inventory Value	Inventory value by Zone / Country / Plant / Stock Type / Valuation Class. Evolution of Level Inventory value by Zone / Country / Plant / Stock Type / Valuation Class.	▪ Inventory Value ▪ Global Sales ▪ Global Consumption ▪ DOS ▪ Inventory Turn ▪ Sales ▪ Restocking	▪ High level Inventory and Global Sales Value: Average value of inventory according to selected months. Average value of Global Sales&Consumption (MM) for the same period. DOS and Inventory Turn. ▪ High Level Sales Value: Average value of Sales (OBAS - invoiced) and Restocking (inter-company replenishment) converted in EUR for the same period. ▪ Evolution of Inventory, global Sales&Consumption (MM), Sales, Restocking, DOS and Inventory Turn.

Inventory Quantity	Inventory Quantity by Zone / Country / Plant / Stock Type / Valuation Class. Evolution of Inventory Quantity by Zone / Country / Plant / Stock Type / Valuation Class.	▪ Inventory Quantity ▪ Global Sales ▪ Global Consumption ▪ DOS ▪ Inventory Turn ▪ Sales ▪ Restocking	▪ High level Inventory and Global Sales Quantity: - Average quantity of inventory according to selected months. Average value of Global Sales&Consumption (MM) for the same period. DIOH and Inventory Turn. ▪ High Level Sales Quantity: - Average quantity of Sales (OBAS - invoiced) and Restocking (inter-company replenishment) converted in EUR for the same period. ▪ Evolution of Inventory, global Sales&Consumption (MM), Sales, Restocking, DIOH and Inventory Turn.
Aging Stock	Report on inventory age identified at batch level by its manufacturing date or last goods receipt date and last day of the month date. The age of the stock is divided into 4 categories: 0-4 months, 4-12 months, 12-24 months, >24 months. Ageing Analysis also lists out items batch wise the shelf life of the products i.e. already expired or may expire in the near future (number of days before the expiry date).	▪ Aging stock by categories (0-4, 4-12, 12-24, >24 months in quantity and value) ▪ Expired - Not Expired stock in quantity and value. ▪ Evolution Expired and >12 months in quantity and value.	▪ The number of days and months in stock is calculated as follows: Last Day of the Month - Last Goods Receipt date (or Manufacturing date if Last GR date not available). ▪ Expired stock: Expiry Date - Last Day of the Month = Number of days before expiry. ▪ If Number of days before expiry > 0 => Not Expired ▪ If Number of days before expiry <= 0 => Expired ▪ Stock without batch numbers are excluded

Stock Typology	The tool provides visibility on the following stock layers: ■ Unrestricted Use ■ Quality ■ Material Provided to Vendor ■ Inter-plant Transfer ■ In Transit ■ Customer consignment ■ Blocked		<table border="1"> <thead> <tr> <th>Stock type Key</th><th>Stock type Detail 1</th><th>Stock type Detail 2</th><th>Stock type Group</th></tr> </thead> <tbody> <tr><td>#</td><td>Not assigned</td><td>Not assigned</td><td>Not assigned</td></tr> <tr><td>#</td><td>Not Defined</td><td>Not assigned</td><td>Not assigned</td></tr> <tr><td>A</td><td>Unrestricted Use</td><td>Unrestricted Use</td><td>Unrestricted Use</td></tr> <tr><td>B</td><td>Quality Inspection</td><td>Quality Inspection</td><td>Quality</td></tr> <tr><td>C</td><td>Blocked Stock Return</td><td>Blocked Stock Returns</td><td>Blocked</td></tr> <tr><td>C</td><td>Blocked Stock Returns</td><td>Blocked Stock Returns</td><td>Blocked</td></tr> <tr><td>D</td><td>Blocked Stock</td><td>Blocked Stock</td><td>Blocked</td></tr> <tr><td>E</td><td>Restricted-Use</td><td>Restricted-Use</td><td>Blocked</td></tr> <tr><td>F</td><td>Stock Transfer</td><td>Stock Transfer</td><td>Inter-Plant transfer</td></tr> <tr><td>H</td><td>Transit</td><td>In transit Intra Co</td><td>In Transit</td></tr> <tr><td>I</td><td>Transit W C</td><td>In transit Inter Co & Final Customer</td><td>In Transit</td></tr> <tr><td>K</td><td>Customer Consignment</td><td>Customer Consignment</td><td>Customer Consignment</td></tr> <tr><td>K</td><td>Customer Consignment, Unrestricted Use</td><td>Customer Consignment</td><td>Customer Consignment</td></tr> <tr><td>M</td><td>Customer Consignment, Restricted Use</td><td>Customer Consignment</td><td>Customer Consignment</td></tr> <tr><td>Q</td><td>Unrestricted-Use Mat</td><td>Unrestricted-Use Material(s) Provided to Vendor</td><td>Material Provided to Vendor</td></tr> <tr><td>Q</td><td>Unrestricted-Use Material(s) Provided to Vendor</td><td>Unrestricted-Use Material(s) Provided to Vendor</td><td>Material Provided to Vendor</td></tr> <tr><td>R</td><td>Materials Provided t</td><td>Unrestricted-Use Material(s) Provided to Vendor</td><td>Material Provided to Vendor</td></tr> <tr><td>R</td><td>Materials Provided to Vendor in Quality Inspection</td><td>Unrestricted-Use Material(s) Provided to Vendor</td><td>Material Provided to Vendor</td></tr> <tr><td>S</td><td>Stock of Material Pr</td><td>Stock of Material Provided to Vendor, Restricted Use</td><td>Material Provided to Vendor</td></tr> <tr><td>S</td><td>Stock of Material Provided to Vendor, Restricted Use</td><td>Stock of Material Provided to Vendor, Restricted Use</td><td>Material Provided to Vendor</td></tr> <tr><td>V</td><td>Consumption</td><td>Consumption</td><td>Consumption</td></tr> <tr><td>W</td><td>Valuated Goods Receipt Blocked Stock</td><td>Valuated Goods Receipt Blocked Stock</td><td>Blocked</td></tr> <tr><td>X</td><td>Stock in Transfer for Customer Consignment (Plant to Plant)</td><td>Stock in Transfer for Customer Consignment (Plant to Plant)</td><td>Customer Consignment</td></tr> </tbody> </table>	Stock type Key	Stock type Detail 1	Stock type Detail 2	Stock type Group	#	Not assigned	Not assigned	Not assigned	#	Not Defined	Not assigned	Not assigned	A	Unrestricted Use	Unrestricted Use	Unrestricted Use	B	Quality Inspection	Quality Inspection	Quality	C	Blocked Stock Return	Blocked Stock Returns	Blocked	C	Blocked Stock Returns	Blocked Stock Returns	Blocked	D	Blocked Stock	Blocked Stock	Blocked	E	Restricted-Use	Restricted-Use	Blocked	F	Stock Transfer	Stock Transfer	Inter-Plant transfer	H	Transit	In transit Intra Co	In Transit	I	Transit W C	In transit Inter Co & Final Customer	In Transit	K	Customer Consignment	Customer Consignment	Customer Consignment	K	Customer Consignment, Unrestricted Use	Customer Consignment	Customer Consignment	M	Customer Consignment, Restricted Use	Customer Consignment	Customer Consignment	Q	Unrestricted-Use Mat	Unrestricted-Use Material(s) Provided to Vendor	Material Provided to Vendor	Q	Unrestricted-Use Material(s) Provided to Vendor	Unrestricted-Use Material(s) Provided to Vendor	Material Provided to Vendor	R	Materials Provided t	Unrestricted-Use Material(s) Provided to Vendor	Material Provided to Vendor	R	Materials Provided to Vendor in Quality Inspection	Unrestricted-Use Material(s) Provided to Vendor	Material Provided to Vendor	S	Stock of Material Pr	Stock of Material Provided to Vendor, Restricted Use	Material Provided to Vendor	S	Stock of Material Provided to Vendor, Restricted Use	Stock of Material Provided to Vendor, Restricted Use	Material Provided to Vendor	V	Consumption	Consumption	Consumption	W	Valuated Goods Receipt Blocked Stock	Valuated Goods Receipt Blocked Stock	Blocked	X	Stock in Transfer for Customer Consignment (Plant to Plant)	Stock in Transfer for Customer Consignment (Plant to Plant)	Customer Consignment
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Analytics	■ Double ABC Analysis ■ 9 Box Model ■ Excess Inventory		■ Double ABC analysis: it illustrates the 80% for each product, an 80/15/5 analysis in term of Sales quantity and in stock quantity, assigning an ABC category to each product on both sales and stock volume. ABC Analysis is a valuable tool for inventory management. It makes sense to direct effort to control closely the items classified as A and use less sophisticated techniques on the items classified as C. By closely controlling the few (e.g. 20% of the items) A items, a company can focus on 80% of the inventory cost. Average Global Sales Qty and Average Global Consumption Qty of selected period is used for Sales ABC Classification 80 - 15 - 5. Sales and Consumption are added up to determine total sales quantity of FG. For other materials (RM, INT), we only take Consumption into account. For ABC stock classification, we take the average quantity of selected period. The coverage in weeks is calculated as follows: Average qty of Stock per month / Average Quantity of sales X 4 ■ 9 Box Model: Compares the ABC Classification based on sales with a Coefficient of Variation of the Demand in order to analyze further the stock composition. ■ Coefficient of Variation = Standard Deviation of the Demand/Average Demand for the period ■ Low Variability (L): COV1 ■ Medium Variability (M): 1COV2 ■ High Variability (H): COV2 ■ Z= items with no demand Average Global Sales quantity and Global Consumption quantity - depending on the selected period - is used for Sales ABC Classification 80 - 15 - 5. Coefficient of Variability = Standard Deviation of Demand for selected period in Quantity (Global Sales + Global Consumption) / Average Demand for the period. ■ Excess Inventory: Excess Inventory ("The Excess Inventory Analysis permits to categorize products into ABCD categories (A: 80% of sales; B: next 15%; C: last 5%; D: negative sales) and Identify for each category the stock value that is beyond the DIOH bracket (in Excess). There are 6 categories of DIOH (Weeks): Default values: cat 1: <4 weeks; cat 2: 4-8 weeks; cat 3: 8-12 weeks; cat 4: 12-16 weeks; cat 5: 16-26 weeks; cat 6: >26 weeks ■ Graph 1: Stock value. It places the Sum of the Inventory average value (of the selected period in months) of all items belonging to each category (e.g. Add the average inventory value for 2016 of 2 A products, one with 3 weeks of DIOH and another with 2 weeks of DIOH). ■ Graph 2: Nbr of Items. It counts the number of materials belonging to the category (same logic as above, count the number of A products with less than 4 weeks DIOH)" ■ Graph 3: Excess Value. ■ Definition of excess: ■ For A products: more than 8 weeks DIOH (upper range of cat 2) ■ For B product: more than 12 weeks DIOH (upper range of cat 3) ■ For C product: more than 16 weeks DIOH (upper range of cat 4) ■ Calculation of Excess weeks: Formula: Average DIOH (Weeks) - Definition of Excess for the product classification. E.g. An A product with 18 weeks of DIOH--> Nbr of Excess Weeks: 18-8=10" ■ Calculate Excess value: Total Average Stock Value/DIOH (Weeks)*Nbr of Excess Weeks. ■ Build Table: Place the Excess value corresponding to the product category on the category range of excess e.g A Product with 18 weeks of Excess. Value of Excess: 67k euros. The excess value will go in the A--> 8-12 weeks category" ■ Summary Table: ■ Total Average Inventory: Total of Graph 1. ■ Excess Inventory: Total Graph 3 ■ Excess %: Excess Inv/Total Inventory ■ Nbr of Items with Inventory: Total Graph 2 ■ Nbr of Items with Excess: Total of items in Graph 2 which are out of the defined range % of Items with Excess: Items with Excess/Items with Inventory.																																																																																																
Reports	■ Excel extractor																																																																																																		

Axes of Analysis	Description		
GBU	Name of GBU		
Zone	Name of Zone		
Company	Name of Company		
Plant	Name of Plant		
Valuation Class:			
1. Trading goods:			
Trading goods refer to products purchased from a third-party supplier and sold by Solvay to its customers. There are 2 different flows: Direct Trading and Indirect Trading.			
- Direct Trading			
The vendor directly delivers the goods to the customer. There is no goods receipt in Solvay inventory.			
- Indirect Trading			
The vendor delivers the goods to a Solvay warehouse which delivers them to the customer.			
There is a goods receipt in Solvay inventory.			
2. Finished products:			
Products on which all manufacturing operations, including final test, have been completed. These products are available for shipment to the customer.			
3. Raw Materials:			
Purchased items or extracted materials that are converted via the manufacturing process into components and products.			
4. Intermediates			
Goods in various stages of completion throughout the plant.			
Transportation Group	Bulk / Packed / Not Assigned		



Key Figures	Description	Calculation Method
Stock Value	Inventory values expressed in EUR	Values extracted from BW Core query BW_QRY_MPR_IC001_0014 (WP1) and BW_QRY_MVMMIC01_0003 (PF1)
Stock Quantity	Inventory values expressed in tons	Quantities extracted from BW Core query BW_QRY_MPR_IC001_0014 (WP1) and BW_QRY_MVMMIC01_0003 (PF1)

Global Sales	Total External sales - goods issues in Quantity converted in Tons and in Currency converted in EUR per month. The value is the value of the stock movement.	Quantities and Values extracted from BW query. WP1: BW_QRY_MPR_IC001_0014 PF1: BW_QRY_MVMMIC01_0003
Globales Consumptions	Total Internal consumption sales - goods issue in Quantity converted in Tons and in Currency converted in Ton per month. The value is the value of the stock movement.	Quantities and Values extracted from BW query. WP1: BW_QRY_MPR_IC001_0014 PF1: BW_QRY_MVMMIC01_0003
Sales	Total External sales - Billing without taxes in Quantity converted in Tons and in Currency converted in EUR per month. The value is the value of the invoice.	Quantities and Values extracted from BW query QVSBS_BW_QRY_MVSDSO44_0001
Restocking	Inter-company Stock Transfer Orders (also named STO or stock replenishment) between 2 Solvay sites (plant or distribution center).	Data extracted from BW query QVSBS_BW_QRY_MVSDSO42_0001
In Transit	The In Transit stock considered in the dashboard is Inter-company and Intra-company stock. - Inter-Company In Transit stock. This stock type is imported from the BW Working Capital Query BW_QRY_MVFIWC01_0005. A filter on the G/L account has been set-up in order to exclusively show the following accounts: - WP1: Account 37000300 for other materials than RM shipped by a Solvay supplier and billed or not billed yet to a Solvay affiliate (inbound and outbound transit) : - direct trading - Interco direct shipment - Interco stock replenishment (STO) - WP1: Account 37000305 for materials shipped by a Solvay supplier but not billed yet to external customers (outbound transit) : - normal sales - indirect trading - interco direct shipment - PF1: Account 2020000000 is used to record automated inbound and outbound stock in transit for materials with valuation class Z100 and Z101 (finished goods). - Intra-Company In Transit stock: this stock type is directly imported from BW stock core queries BW_QRY_MPR_IC001_0014 (WP1) and BW_QRY_MVMMIC01_0003 (PF1).	- Inter-Company In Transit stock: the G/L accounts below are excluded from the dashboard: - Account 31000400 for raw materials (valuation class Z100 in WP1) shipped and billed by external or Solvay suppliers that will soon arrive at a Solvay plant (inbound transit) : - normal purchasing / scheduling agreement - direct trading - indirect trading - interco stock replenishment (STO) - Account 2120000001 is only used in manual adjustments, no automatic postings. - Account 2100110001 is used to record automated inbound stock in transit for materials with valuation class Z053 and Z061 (semi-finished goods). - Account 2100010201 is used to record automated inbound stock in transit for materials with valuation class Z000, Z049, Z050, Z052 and Z054 (raw materials). - Account 2020000001 is used to record automated inbound stock in transit for materials with valuation class Z101 (Finished goods purchased) at company 5785 only.
DIOH	DIOH 'Inventory Days on Hand' is an estimate of the number of days for which the average balance of inventory will be sufficient.	End of Month Stock Quantity (of concerned month) / Average 3 months (Global Sales Qty + Global Consumption Qty) X nbr of days in the period. Note: to be aligned with Finance calculation: - Average Global Sales Qty + Global Consumption: M-1, M, M+1 - Exception: * first month of selection: M, M+1 * last month of selection: M-1, M
DOS	"Days of Supply" is an efficiency ratio that measures the average number of days the company holds its inventory before selling it. The ratio measures the number of days funds are tied up in inventory. Inventory levels (measured at value) are divided by sales per day (also measured at cost - COGS - rather than selling price.)	End of Month Stock Value (of concerned month) / Average 3 months (Global Sales Value + Global Consumption) X nbr of days in the period. Note: to be aligned with Finance calculation: - Average Global Sales Value + Global Consumption: M-1, M, M+1 - Exception: * first month of selection: M, M+1 * last month of selection: M-1, M

Inventory Turn	In accounting, the Inventory turnover is a measure of the number of times inventory is sold or used in a time period such as a year. The equation for inventory turnover equals the cost of goods sold or net sales divided by the average inventory.	Total (Global Sales Value or Quantity + Global Consumption) / Average Stock Value or Quantity (of selected period).
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Source System	Data sources	Source Query Name	Source Query Description	WBP Qlikview Query Name
WP1	Stock Value and Quantity, Stock Typology, Global Consumption, Global Sales	WBP: BW_QRY_MPR_IC001_0014	BW - Stock Movement All Types (Core Query)	QVSBS_BW_QRY_MPR_IC001_0004 (VAL QTY)
PF1 & WP1	Stock In Transit	WBP: BW_QRY_MVFIWC01_0005	BW - Working Capital Inventories (Core Query)	QVSBS_BW_QRY_MVFIWC01_0001
WP1	Aging Stock	WBP: BW_QRY_MPR_IC001_0051	BW - Stock Values and Quantities (Core Query)	QVSBS_BW_QRY_MPR_IC001_0003(BATCH)
PF1	Stock Value and Quantity, Stock Typology, Global Consumption, Global Sales	WBP: BW_QRY_MVMMIC01_0003	BW - Inventory Management - Stock Movement (Core Query)	QVSBS_BW_QRY_MVMMIC01_0001 QVSBS_BW_QRY_MVMMIC01_0002
PF1 & WP1	Sales	BI4: INVEX_LIST_OF_SALES_CWWPPS_R001	INVEX_LIST_OF_SALES_CWWPPS_R001	QVSBS_BW_QRY_MVSDS044_0001
PF1 & WP1	Purchase (Inter-company Stock Replenishment)	BI4: INVEX_LIST_OF_SALES_CWWPPS_R001	INVEX_LIST_OF_SALES_CWWPPS_R001	QVSBS_BW_QRY_MVSDS042_0001

Currencies
EUR
Conversion rate : Translation Key ZRHO - End of Month