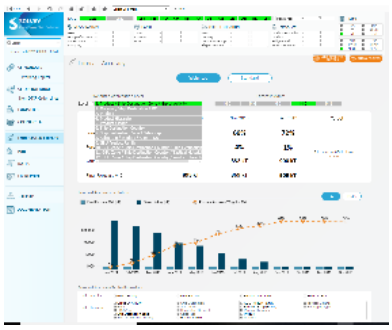
# Forecast Accuracy 2.0 ARCHIVES



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## General Description

The KPI **Forecast Accuracy (FA)** evaluates the ability to get a visibility on customers' demand in terms of quantity.

As an input of S&OP process, reliable forecasts constitute the major way to improve the customer satisfaction via an optimized planning of operations. The Forecast Accuracy in this dashboard is calculated based on the **Final Forecast and the Gross History.**

For a particular month, the Forecast Accuracy is calculated for the last **5 months forecast (M-1 ... M-5);** allowing the possibility to evaluate the accuracy of the forecast with reference to several different forecast periods.

**The refresh of the KPI is made every month on the 7th, including the full history.**

It is available for all GBUs currently using Dynasys or APO as Demand Planning systems: Aroma Performance, Composite Materials, Novecare, Peroxides, Silica, Soda Ash&Derivatives, Special Chem and Technology Solutions.

### Source Data in the GSCD

| | Source | Gross History | Final Forecast |
|---|---|---|---|
| **Aroma** | Dynasys | Demand History ETA | Last validated Forecast ETA |
| **Silica** | Dynasys | Demand History ETA | Last validated Forecast ETA |
| **TS** | Dynasys | Demand History ETA<br><br>(Sales Orders volumes in ETA) | Sales Team Forecast ETA |
| **Novecare** | Dynasys | Demand History ETA<br><br>(Last Requested Delivery Date) | Last validated Forecast ETA |
| **SA&D** | Dynasys | Actual Shipped Qty in ETD | Last Validated Forecast ETD (Unconstrained Demand validated after demand review meeting) |
| **Peroxides** | Dynasys | NA: Shipped History ETD<br><br>Others: Demand History ETA | NA: Last validated Forecast ETD<br><br>Others: Last validated Forecast ETA |

### Target Users

- Global Supply Chain Managers
- Regional Supply Chain
- Local Supply Chain
- Supply Chain Analyst
- S&OP Manager
- Purchasing Manager / Buyers
- Supply Chain Excellence
- Account Managers

### Authorization & Rights

All the accesses must be validated by:

GBUs and Supply Chain Excellence

Request access to global SC dashboard by Service One ticket (Corporate Dashboard)

### Glossary

| | | | |
|---|---|---|---|
| **Spec Chem** | Dynasys | Demand History ETA | Last validated Forecast ETA |

**Key figures**

**Weighted Forecast Accuracy:** In addition to the Standard Forecast Accuracy, a second method for calculating the Forecast Accuracy is available.

This measure weights the Forecast Error based on the Gross History of the selected month, according to the selected level of aggregation.

**Weighted Forecast Accuracy = Sum[Max(0; 1- Abs((Final Forecast - Gross History)/ Gross History))1MonthWeight] / [Sum Gross History 1MonthWeight] x 100**

**Levels of aggregation are available with dynamic calculation for each level:**

| | **Material / Ship-to / Distribution Channel** | **Product / Ship Destination zone / Group of activity** | **Product / Plant or Product Hierarchy / Sold-To** | **Sales Rep / Product / Ship-to KA**<br><br>**or Product / Sales Rep** |
|---|---|---|---|---|
| Timeframe | Operational purpose | All purposes | All purposes | Operational purpose |
| Purpose | Measurement to review schedule/forecast accuracy correlation in relation to the schedule adherence at plant level<br><br>Detailed reviews and Deep dive to understand the gaps | Measurement to review Forecast Accuracy at the Global S&OP meetings (Quarterly)<br><br>Understanding the needs of a product in a given region<br><br>Used in the E2E VC dashboard and at the GBU level | Measurement to review planning accuracy in Supply Reviews (actual correlation forecast/planning)<br>Proper procurement of forecasts.<br>Impact on raw material planning<br>Review performance of work centers<br><br>Note: Product Hierarchy/Sold-to is used for SpP and Peroxides also for their SIP reviews | Measurement for SIP targets: sales representative performance reviews |
| Roles & Responsibilities | Responsible: none, is a KPI used for the details<br><br>Accountable: Demand Planner/S&OP Mgr | Responsible: Demand Planner /S&OP Mgr<br><br>Accountable: Sales Mgr | Responsible: Supply Planners/SC Site Mgr<br><br>Accountable: Demand Planner/S&OP Mgr | Responsible: GBU SCE /Demand Planner<br><br>Accountable: Sales Mgr |

Purpose: what can we really measure with each dimension/aggregation level in order to understand who is the Key Responsible to track this KPIs.

Roles & Responsibilities: Responsible is considered the person who will look after this KPI in a monthly basis and Accountable is the person whose decisions can leverage a better insight and/or opportunities to improve the KPI

Timeframes (Lag): they depend on how the business is structured and their standard leadtimes, eg. if we talk about a business mostly MTO driven with total replenishment lead times that last around 3 months then the operational purpose is at M+4, if instead it is a business mostly MTS driven M+2 will give an insight on operational purposes. Overall we can say that: M-n: Operational purpose, M-n+2: Procurement purpose and M-n+5: Workload/Contract purpose

**Standard Forecast Accuracy:** This figure measures the gap between the Gross History and the forecasted quantities. To have a better representation of the forecast error, an absolute value of the forecast error is calculated.

This is also called the **Mean Absolute Percentage Error (MAPE)**.

**Standard Forecast Accuracy = Max(0; 1- Abs((Final Forecast - Gross History)/Gross History)) x 100**

Forecast Accuracy = 100%, it means there is no gap between the Forecast and the Gross History
Forecast Accuracy = 0%, it means inaccurate forecasts

Forecast Accuracy M onth-2 is the time between produced forecast and the Gross History (FA June M-2: means forecasts done in April)

**Figures**

**Final Forecast** = Total on quantity forecast to be shipped. Final Forecast is the forecast validated after the Demand Review (=Unconstrained Forecast)

**Gross History** = Customer Demand = Last Customer Request

**Dimensions**

**Distribution Channel** = Sales Distribution Channel

**GBU Prod. Family** = by default the Product Family, but also the Product Hierarchy, the GBU Material Group, or the Forecasts Family

**GBU Zone** = Mini-Zone = Group of Countries, Specific by GBU

**Packaging Type** = used on a material

**Product Group (PGMI)** = Group of products from Dynasys

**Product Line 00** = Attribute of a material. There are 6 differents product line levels, corresponding to differents aggregations of products

**Sales Rep** = Sales Representative from Dynasys Sales Group = DFU owner

**Ship-to KA** = Ship-to Key Account, final account

**Tactical Material** = Concatenation of Product Hierarchy and Packaging

***Full Dimensions Glossary here***

**Training**

Link to the training material (G Slides)

Request training

**Forecast Bias ratio (%):** It measures the tendency for a forecast to be consistently higher or lower than the actual value.

Forecast Bias is distinct from the forecast error, in that a forecast can have any level of error, but still be completely unbiased. It is calculated as the average deviation (over or below) of forecasts from actuals.

**Forecast Bias = Sum(Final Forecast)-Sum(Gross History)/Sum(Gross History) x 100**

If the Forecast is greater than the Gross History, then the Forecast Bias is positive (indicates over forecast)

At the opposite, if the Forecast is lower than the Gross History, then the Forecast Bias is negative (indicates under forecast)

A Forecast Bias = 0, indicates a total absence of gap (bias)

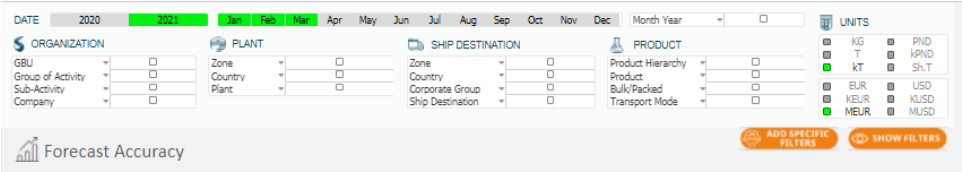
*Forecast Bias is a "tracking signal" (positive or negative) and percentage can be above 100%*

*In many cases, it is useful to know if demand is systematically over- or under-estimated. For example, even if a slight forecast bias would not have a notable effect on store replenishment, it can lead to over- or under-supply at the central warehouse or distribution centers if this kind of systematic error concerns many stores.*

**How does it work?**

## 1. Select Filters

On top of the dashboard, several different filters allow you to reduce the scope of data for the analysis




as well as Specific Filters to select in the dedicated box

## 2. Select the Forecast Accuracy calculation method

As explained above, the Forecast Accuracy is calculated according to:

- the standard calculation at the detailed level *Material x Distribution Channel x Ship-to*
- the weighted calculation at selected level within the 12 available ones in the drop-down menu (dynamic calculation at displayed level)

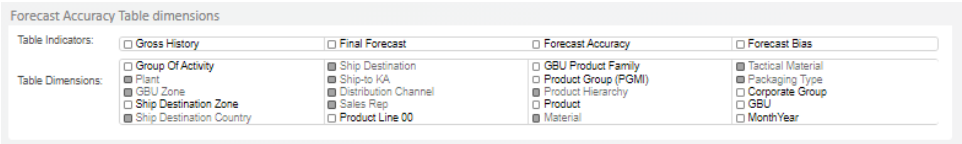
## 3. Select the reference period

On every 6th of each month, a snapshot of the Forecast is taken, keeping the reference of the forecast provided up to 5 months before. This will allow to calculate the FA for periods M-1, M-2, M-3, M-4, and M-5.

**Click here to retrieve the naming conventions by system**

## 4. Check the Forecast Accuracy table

After applying the filters, selecting an aggregation level and a reference period, there is still a way to customize a detail table with the desired Indicators and Dimensions




*Please note that all dimensions don't match with all aggregation levels.*

*As a consequence, only the dimensions that are available for the selected aggregation level are displayed.*

*M ismatching dimensions are disabled to avoid calculation errors.*

In the custom table, dimensions in the cyclic depend on the selected aggregation level. If a column is displayed twice because of the cyclic, just deselect the corresponding dimension in the table.

In the pivot table format (Click on the Fast change if you don't see it), the total is available for the 1st column. Move your columns to get the total for the dimension you wish.

**Technical Documentation**

**Source**: DYNASYS / APO (WP1) / APO (PF1) - QV_BW_QRY_MVDYN11_0005

**Update**: Monthly full reload (history included) on the night of the 6th and the 7th (minor corrections in Gross History may still occur from one month to another)

**Technical BW Documentation**: BW - DP - Forecast Accuracy (Core Query)

**Naming convention by Source System (Dynasys vs APO)**

| Global SC Dashboard | Dynasys | APO (WP1) | APO (PF1) |
|---|---|---|---|
| Gross History | GH / Gross History | Demand History | History |
| Final Forecast | FF / Final Forecast | PreSOIP Plan | Consensus Forecast |

**Dimensions**: Global Overview of Dimensions

| | | | Forecast Accuracy |
|---|---|---|---|
| **Global Filters** | **Period** | **Month Year** | Calendar Year/Month [0CALMONTH] |
| | **Organization** | **GBU** | BFC GBU [CPFCTR1_2] |
| | | **Group of Activity** | PF1: Group of activity = [C_DYN_010] BU\Attributs\[CPFCTR2_2] BFC Group of activities<br><br>WP1: Manual Mapping based on [G_CWWE1] IECRA to get Group of Activity (MAPPING DYNASIS.xls) |
| | | **Sub-Activity** | PF1: Activity = [0G_CWWE01__C_MAGNITU] BFC Activity 1<br><br>WP1: Manual Mapping based on [G_CWWE1] IECRA to get the Sub-activity (MAPPING DYNASIS.xls) |
| | | **Company** | [C_DYN_018__C_COMPCDE] Company code |
| | **Plant** | **Zone** | Main Shipping Plant Geo Zone [C_DYN_018__C_MPPLANT__C_GEOZONE] |
| | | **Country** | Main Shipping Plant Country [C_DYN_018__C_MPPLANT__C_0COUNTRY] |
| | | **Plant** | Main Shipping Plant [C_DYN_018__C_MPPLANT] |
| | **Ship Destination** | **Zone** | Ship-to BFC Geo Zone [C_SHIPTID__C_ZONE] |
| | | **Country** | Ship-to Country [C_SHIPTID__C_0COUNTRY] |
| | | **Corporate Group** | Ship-to Corporate group [C_SHIPTID__C_CORPGR] |
| | | **Ship Destination** | Ship-to [C_SHIPTID] |
| | **Product** | **Product Hierarchy** | Prod.hierarchy [C_MATNR2__0PROD_HIER] |
| | | **Product** | Com Prod / Mat Grp [C_MATNR2__C_PROD] |
| | | **Bulk/Packed** | N/A |
| | | **Transport Mode** | N/A |
| **Specific Filters** | | **Distribution Channel** | Distribution Channel [0DISTR_CHAN] |
| | | **GBU Product Family** | Default: Product Family Code [C_MATNR2] Material\Attributes\[C_FMPRD]<br><br>**Exceptions**:<br>Soda Ash, Fibras:<br>WP1: C_MATNR2_C_LIP03<br>PF1: [C_MATNR2__0PROD_HIER] Prod. Hierarchy<br><br>Aroma, Silica = GBU Material Group<br>Special Chem = GBU Material Group (both WP1 & PF1)<br><br>Peroxides:<br>WP1:LIP2<br>PF1: Product_Hierarchy_ Cheops PIF (Missing- not possible)<br><br>Novecare, Technology Solutions:<br>WP1: Default<br>PF1: [C_MATNR2__0PROD_HIER] Prod. Hierarchy<br><br>Polytechnyl, Performance Polyamides, Alsachimie:<br>[C_MATNR2] Material\Attributes\[C_ACRI015] Forecasts Family |
| | | **GBU Zone** | [CGBUZONE__C_ZONEH2] Ship-to GBU zone 2<br><br>Exception for TS: [CGBUZONE__C_ZONEH1] GBU zone (hier .1) for TS Mining<br><br>No hierarchy used for Phosphorus Specialities |
| | | **Material** | Material [C_MATNR2] |

| | | | |
|---|---|---|---|
| | | **Material Group** | Material Group [C_MATNR2__C_MAT_GRP] |
| | | **Packaging Type** | Packaging Type [C_MATNR2__C_MAT_GRP] |
| | | **Product Group (PGMI)** | Product Group (PGMI) [C_DYN_005__C_GRPPGMI] |
| | | **Product Line 00** | Product line 00 [C_MATNR2] Material\Attributes\[C_LPROD] |
| | | **Sales Rep** | Sales Employee [C_DYN_021__C_DYN_065] |
| | | **Ship-to KA** | Ship-to Key Account [C_GBR15_C_SHIPKA] |
| | | **Tactical Material** | Tactical Material [C DYN_005_C_TACTIC2] |
| | | Corporate Sold-To | [C_CORPGR] CRM Customer Corp. Group (PRS) |