

TIPS AND TECHNIQUES

How Many Days of Inventory Are On Hand?

Typically an inventory planner wants to know when the inventory will be used up or when it will drop down to a pre-determined level, such as the safety stock. Unfortunately the traditional ways to calculate this value have problems:

- Average Days Backwards = Inventory On hand / (Last year's demand / Days per year). This assumes that future demand is exactly like last year's average demand. If the demand for the SKU is radically declining, this expression understates the number of days of inventory. If demand is climbing, this measure overstates the inventory in days.
- Average Days Forwards = Inventory On hand / (Next year's forecast / Days per year). The problem here is that this assumes there is no seasonality. For example if you are going into the high season, the inventory on hand would not last as long as if you were going into the low season.

In service pack 131 a new keyword called FCSTDAYS was introduced to FGS. Used in queries and reports, this new keyword allows you to easily and accurately calculate the number of days that a quantity represents. Starting from a particular date, the forecast "forward consumes" a given quantity and then tells you how many sales days to get to zero.

The expression for this new keyword is:

[date] FCSTDAYS quantity

The [date] is optional and allows you to pick the date where the forecast is to start to be consumed. Typically this would be the day the Quantity was loaded. If date is not entered, the default is SKU.FCSTDATE, which is the last day of the last forecast period.

The Quantity could be any value or any calculated value in your database. For example, SKU.ONHAND is the inventory on hand. Assuming that the inventory was loaded as of the end of the SKU.FCSTDATE the expression is:

Days of inventory on hand = FCSTDAYS SKU.ONHAND

For PN = GA-779-0686, where SKU.FCSTDATE = 09/28/84 (yes, 1984, these are real parts from the PHNX database), and SKU.ONHAND = 3,000 units, the result would be 88 days.

This calculation is demonstrated in the spreadsheet to the right. For each fiscal month, the Daily Forecast (col. F) is calculated as the Monthly Forecast Value / Sales Days per Month. (Note the seasonality peaking in Mar/Apr 85). The forecast is

A	B	C	D	E	F	G	H	I	J
PART	Fiscal	Month	FCST	SalesDays	Daily	Cum'l	Partial	Partial	Cum'l
PN	Month	Ending	VALUE	Per Mo.	Forecast	Forecast	Mo Fcst	Days	Days
GA-779-0686	Oct-84	11/2/1984	678	25	27.1	678			25
	Nov-84	11/28/1984	551	18	30.6	1229			43
	Dec-84	12/31/1984	674	19	35.5	1903			62
	Jan-85	2/1/1985	932	23	40.5	2835			85
	Feb-85	3/1/1985	893	20	44.7		165	3.7	88.7
	Mar-85	3/29/1985	939	20	47.0		= 3000 - 2835	= 165 / 47.0	Round down to 88
	Apr-85	5/3/1985	1,128	24	47.0				
	May-85	5/31/1985	810	18	45.0				
	Jun-85	6/28/1985	833	20	41.7				

accumulated for the full months (col. G). The partial month's forecast (col. H) is calculated as the Onhand – the Cumulative Forecast through the last full month. This Partial Month Forecast value is divided by the Daily Forecast to calculate the Partial Days (I). These are added to the cumulative full months and then rounded down (J) to 88 days.

There is much more you can do with the FCSTDAYS keyword function:

DAYS to run out = FCSTDAYS (SKU.ONHAND + SKU.ONORDER)

Date to run out = (FCSTDATE TIMES 0) + FCSTDAYS (SKU.ONHAND + SKU.ONORDER)
MFGDAYSPLUS FCSTDATE

Days to hit the safety stock = FCSTDAYS (SKU.ONHAND + SKU.ONORDER – SKU.SAFTYSTK)

Date to hit safety stock = (FCSTDATE TIMES 0) + FCSTDAYS (SKU.ONHAND + SKU.ONORDER
– SKU.SAFTYSTK) MFGDAYSPLUS FCSTDATE

In the calculations of the date to run out and the date to hit the safety stock, the expression (FCSTDATE TIMES 0) is used in queries to format the result as a date. The day after the date to hit safety stock is typically the need date of the first replenishment order.

There are some other helpful keywords also added in this same service pack:

[date] DAYSDHIST days = The total historical demand over the prior days starting from a date (default is SKU.FCSTDATE)

[date] DAYSHFCST days = The total historical forecast over the prior days starting from a date (default is SKU.FCSTDATE).

You can read more about these keywords in the service pack notes for service pack 131.