

INVENTORY MANAGEMENT: A CASE STUDY OF AUTOMOTIVE COMPANY



**AN INDEPENDENT STUDY REPORT SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT
INTERNATIONAL COLLEGE
KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG
2017
KMUTL-2017-IC-M-002-009**

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THAREENATH SRIPAN

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เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้



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Degree Master of Science

Program Logistics and Supply Chain Management (International Program)

Advisor Dr.Vithaya Suharitdamrong

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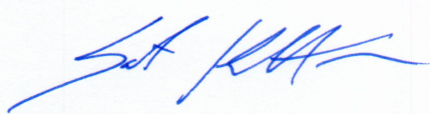
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KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG


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THESIS TITLE Inventory Management: A Case Study of Automotive Company
STUDENT NAME Ms. Thareenath Sripan
STUDENT ID 55600611
DEGREE Master of Science
PROGRAMME Logistics and Supply Chain Management
ADVISOR Dr.Vithaya Suharitdamrong

ABSTRACT

The purpose of this research is to reduce packaging inventory and improve replenishment system in an automotive company who are now holding very high inventory level and facing critical storage space situation. The study improves the existing ordering and supplying method which the company in the past used SAP system to automatic consumption the usage of an inventory stock according to BOM but never count physically and using Excel for Replenishment calculation. To improve and adapt to real situation the historical value and consumption usage are used to categorize the items by “ABC analysis” and determined the “Reorder Point” to know when to order and how to set parameter in SAP system to eliminated human manual calculation.

ACKNOWLEDGEMENT

I would like to express my deepest appreciation to my advisor Dr.Vithaya Suharitdamrong of International College at King Mongkut's Institute of Technology Ladkrabang, without his patient and guidance, I could not make it.

My greatest gratitude to all lecturers, friends, and staffs at King Mongkut's Institute of Technology Ladkrabang who always support.

Thank you to my workplace for giving me the opportunity to apply the theory and knowledge in the real business situation.

Finally, I would like to express the deepest appreciation to my father for inspiration and motivation

Thareenath Sripan



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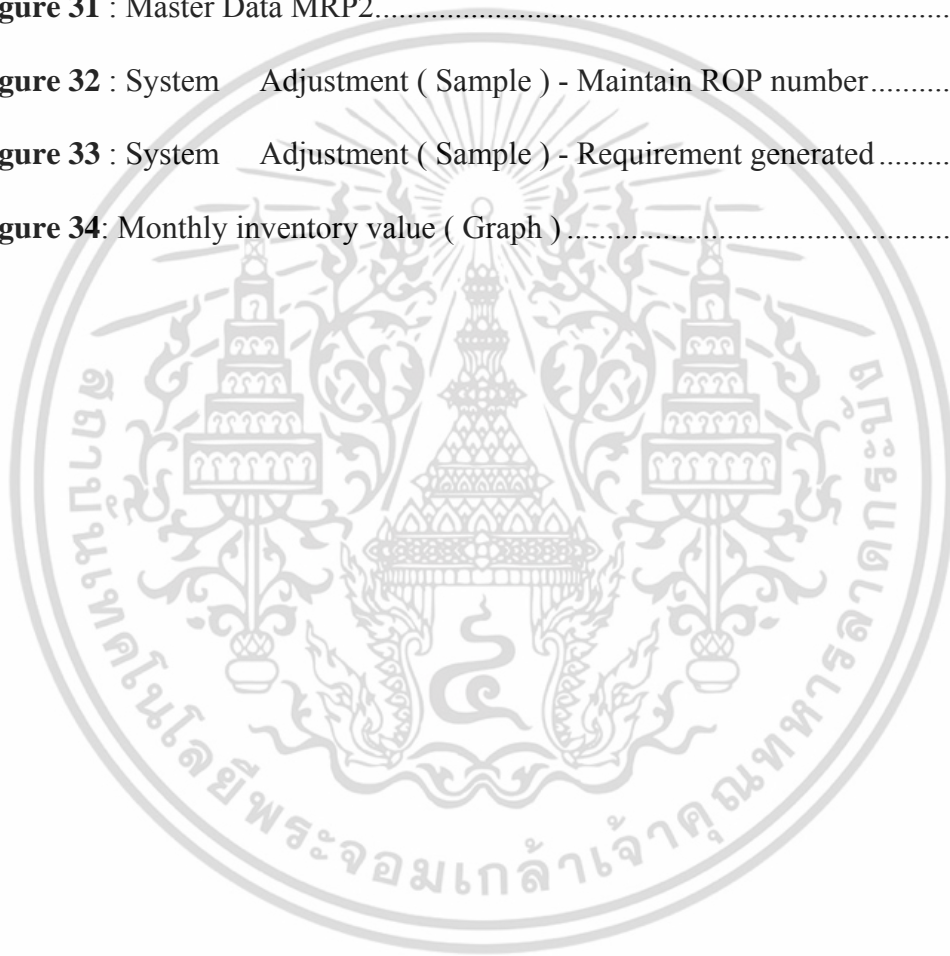
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ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

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CHAPTER 1

INTRODUCTION

1.1 Research Background

Customer satisfaction is number one target for all Manufacturing companies, many of the companies are willing to hold a lot of inventory to guarantee that all customer's requirements can be full-fill at the Right time, with the Right quantities, and in the Right place. On the other hand to have a high level of stock also cause many problems such as the cost of inventory holding, space expansion, and handling process, etc. One of the biggest inventory problems is packaging. Many companies do not pay much attention to the packaging materials because of the piece price themselves but without these two percent value of product – you will not be able to sell your Goods to the customer.

To reduce inventory can be done easily if we can have all customer's requirement with Make to Order method since there are hundreds of packaging need to deliver Goods to end customer. For large company with high volume Vendor inventory management can be their solution meanwhile small or medium size company can face difficult time for price negotiation

1.2 Statement of Problem

This company is one who has a problem with storage of Packaging material which their packaging inventory value at an average of two million Thai Baht each month in the year 2016. The problem stated to be from replenishment system and method, together with the way of handling in daily operation.

The packaging is used directly by Production people where they were placed in pallet quantities next to production line. After production finishes their assembly and pack Goods into the box – follow standard pack quantities, they will do Good receive and from that system withdrawal and posted automatically (Backflush) the usage of packaging materials according to what maintained in the BOM. Meanwhile, in daily operation, we do not have all particular type of packaging which finish and ready to use meaning that most of the time operator have to cut, fold, and modify available packaging materials to fit with what they are packing. Also, there is no control of quantities, warehouse put the whole pallet to the production area and allow the operator to pick and select the packaging materials themselves – there was no guarantee that they will only count and pick according to packaging work instruction. And when number in system cannot trust people start to calculate requirement and consumption manually – this lead to over and wrong calculation

1.3 Research Objective

To find the suitable replenishment method in order to reduce huge current packaging materials in the company.

1.4 Scope of this Research

The packaging materials those defined as A-items from result of ABC Analysis

1.5 Significant of the Research

To be able to apply inventory management model Reorder Point in ERP/SAP/Material master data for current automotive manufacturing company in Thailand

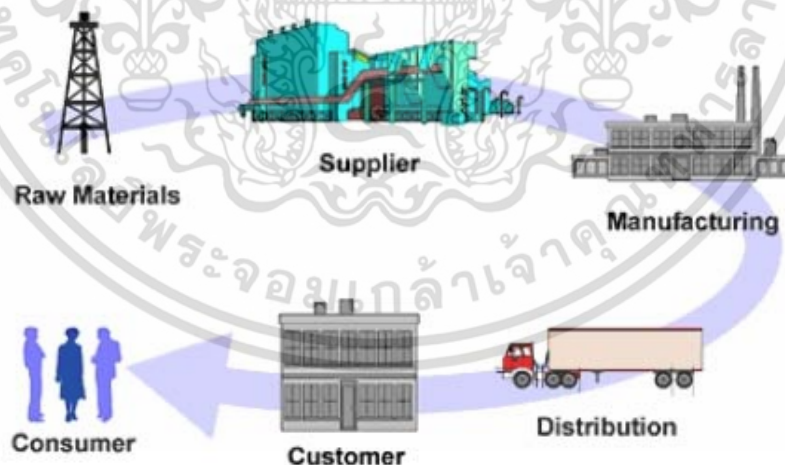
CHAPTER 2

LITERATURE REVIEW

2.1 Supply Chain Management

The chain that included all activities that involved in changing of products from Raw materials level to Finish goods and delivery to customer It is the flow of both Materials and Information which also required the Customer, warehouse, and transporter not only Manufacturer, supplier, and distribution

There are three primary focus functions which are purchasing, manufacturing and distribution. Activities regarding Transport and storage within own functions and relate to other. Have to make sure that all activities are linked and coordinated across the entire supply chain. To have material/product flow correctly from supplier to end customer.



(Rouse, n.d.)

Figure 1 : Supply chain network

2.2 Inventory Management

(Waters, 2007) The purpose of inventory management is to meet customer requirement while keeping inventory cost at a reasonable level

2.2.1 Classification of Inventory

(Mercado, 2007) In production process can define as below

The raw material: Materials that will be used for packing or assembly to Finish Goods.

Under inspection: Materials that currently under inspection process.

Work in process: Materials that under assembly process but not yet finished.

Partially complete: Materials that use for pre-assembly and kept before sending to production line to go to the main assembly

Finish Goods: Final product which passed all assembly processes and ready to be sell to customer

Maintenance, Repair, and Operating (MRO) supply: Not the direct materials that use in assembly processes but use for equipment in assembling processes.

2.2.2 Why holding inventory

(Muller, 2011)

Predictability: For production and capacity planning, we have to be able to control how many raw materials we need and how many pieces we can assemble in particular time.

Fluctuations in demand: none of the customers will provide exact order number per each month – the only forecast will be sent out to supplier to prepare their materials, and in case of sudden increase, this stock help us to be able to react to customer demand increasing and keep customer satisfaction

Unreliability of supply: To avoid any unforeseen problem such as delay of the vessel, delay payment, communication problem, and clearance block. So you still have some pieces on hand which and use for your production.

Price protection: To take advantage of the price of Raw materials when ordering large quantities or at the low price period.

Buffer / Safety inventory: To have always the parts on stock in at any situation to avoid shortage at all point.

Anticipation stock: This has to do with the seasonal matter. This kind of stock need incases that the product only available in some season or period and have to wait for that particular time to come back.

Transit Inventory: This is inventory when you have physical movement from one storage to another. The important is how the number showed in a system, how real time you can react in a system once physical moved. In case that physical and system are not linked and matched – you will face the shortage problem.

2.2.3 Inventory cost

(Waters, 2007)

Ordering Costs: The cost that spends to have raw materials ready for production. This type of cost typically fix and will not vary by pieces of order/lot size but vary by the time sequence.

Sep up costs: Similar to Ordering cost that company needs to pay a certain amount each time they release a new production order. This included production line set up and tool change.

Holding Costs: This cost happens due to an inventory of raw material that company has them ready for production. This will vary directly by the inventory level.

Shortage Cost: This cost happen, when company do not have enough finished good for raw material to fulfill customer requirement

2.2.4 Inventory Types

(Wisner, Tan, & Leong, 2008)

Independent demand

Independent demand is Finish Goods demand that we received from Customer, Sale forecast.

Dependent demand

Dependent demand is demand that direct effect from Finish Good level requirement. Depend on how many pieces will be used for assembly according to the Bill of Materials



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2.3 ABC Analysis

(Duffuaa & Raouf, 2015) ABC analysis is to separate and sort out category of items by their cost factors

Class A: 15 – 20 percent of factors causing 70 – 80% of total cost

A-items need more focus and strict control, and because of its value the replenishment should be frequent; a week or daily to avoid stock out but better have few buffer stock. *Class B: 10 – 20 percent of factors causing 20 – 25% of total cost*

B-items is middle-class type between A-items and C-items who does not need strictly focus nor special treat

Class C: 50 – 60 percent of factors causing less than 5% of total cost

C-items is a High-risk inventory excess items while its demand low. This normally will be less frequency or only purchase by the time its require

To calculate ABC analysis, take the annual quantities usage, multiply by annual values of their usage, divide the total usage value of each item - calculate a percentage of total usage for all items, then ranking / classify items A, B, or C.

2.4 Reorder Point System

(Banerjee, 2010) Consideration of when the order should be place to supplier which taking (a) average daily consumption (b) lead time (c) the minimum or safety stock level

$$\text{Reorder Point} = (\text{Usage} \times \text{Lead Time}) + \text{Safety Stock} .$$

Equation 1 : ROP with Safety stock

$$\text{Reorder Point} = (\text{Usage} \times \text{Lead Time})$$

Equation 2 : ROP without Safety stock

2.5 Economic Order quantity (EOQ)

The Economic Order Quantity formula (EOQ) use for calculating how much we need to buy.

To calculate EOQ, assume:

A = Total Value of SKU Per Year

K = Carrying Cost (The K Factor)

R = Replenishment Cost (The R Factor)

P = Price Per Unit

Basic Formula:

$$EOQ = \sqrt{\frac{2AR}{P^2K}}$$

Equation 3 : EOQ

This formula and its variations allow you to determine the following:

- The optimal quantity to order
- When it should be ordered
- The total cost
- The average inventory level
- How much should be ordered each time
- The maximum inventory level

The EOQ model is based on assumptions below:

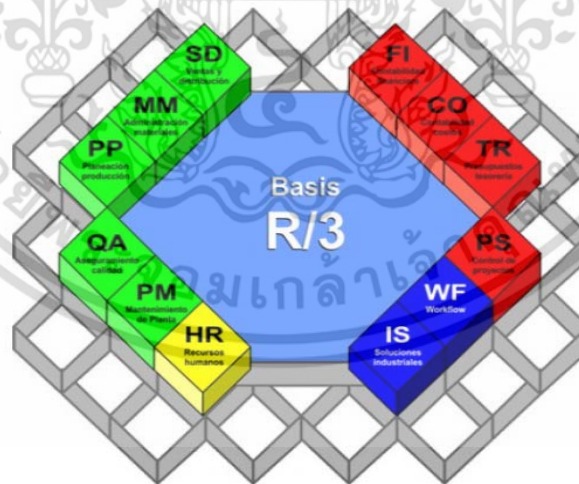
- The demand rate is constant (no variations), recurring, and known.
- The carrying cost and ordering cost are independent of the quantity ordered (no discounts).
- The lead-time is constant and known. Therefore, the ordering times given result in new orders arriving exactly when the inventory level reaches zero.
 - Formula can handle only one type of item at a time.
- Orders arrive in a single batch (no vendor stock outs or backorders).

2.5 ERP

(Sneller RC, 2014) Enterprise Resource Planning system is a computer application that has two major points which are data integration and support for daily business. Data integration means that all information as database have to be key in only one time and can be used for all organization. To support daily business since the system can be adjusted and modify to match with company characteristic, the way company dealing with their customer and supplier

SAP

SAP AG is the name of German Software Company and known for ERP application. (Rizvi, 2015) Stated that SAP stands for System Application Product in data processing. SAP ERP is a combination of all business function as centralized.



(ktnptl, 2016)

Figure 2 : SAP ERP Modules

SAP Modules

(ktnptl, 2016)

Accounting :

(CO)	Controlling
(EC)	Enterprise Controlling
(FI)	Finance
(FSCM)	Finance Supply Chain Management
(IM)	Investment Management
(PS)	Project Systems

Logistics :

(CS)	Customer Service
(FM)	Fleet Management
(LO)	Logistics Execution
(MM)	Material Management
(PM)	Plant Maintenance
(PP)	Production planning
(QM)	Quality Management
(SD)	Sales and Distribution
(WM)	Warehouse Management
(EH&S)	Environment, Health, and Safety

Human Resources:

(HR-ABAP)	Advance Business Application Programming
(HR-BN)	Benefits
(HR-CM)	Compensation
(HR-ECM)	Enterprise Compensation
(HR-LN)	Loan
(HR-LSO)	Learning Solutions
(HR-OM)	Organization Management
(HR-PA)	Personnel Administration
(HR-PB)	Recruitment
(HR-PD)	Personnel Development
(HR-PM)	Personnel Management
(HR-PT)	Personal Time Management
(HR-PY)	Payroll
(HR-TE)	Training and Event Management

Technology :

(ABAP)	Programming
(BC)	Basic Components
(CA)	Cross-Application

Other :

Need to be installed separately:

(BCS)	Business Consolidation and Sourcing
(BI)	Business Intelligence
(BPC)	Business Planning and Consolidation
(BW)	Business Warehouse
(CFM)	Corporate Finance Management
(CRM)	Customer Relationship Management
(GTS)	Global Trade Services
(IDES)	International Demonstration and Education System
(KW)	Knowledge Warehouse
(MDM)	Master Data Management
(PI)	Process Integration
(SEM)	Strategic Enterprise Management
(SRM)	Supplier Relationship Management
(XI)	Exchange Infrastructure

Material Master Data

(AGRAWAL, 2016) Material Master Data contain all of the materials database that has been set and maintained in the system from basic data to specific details for each company; such as material number, material type, storage location, etc.

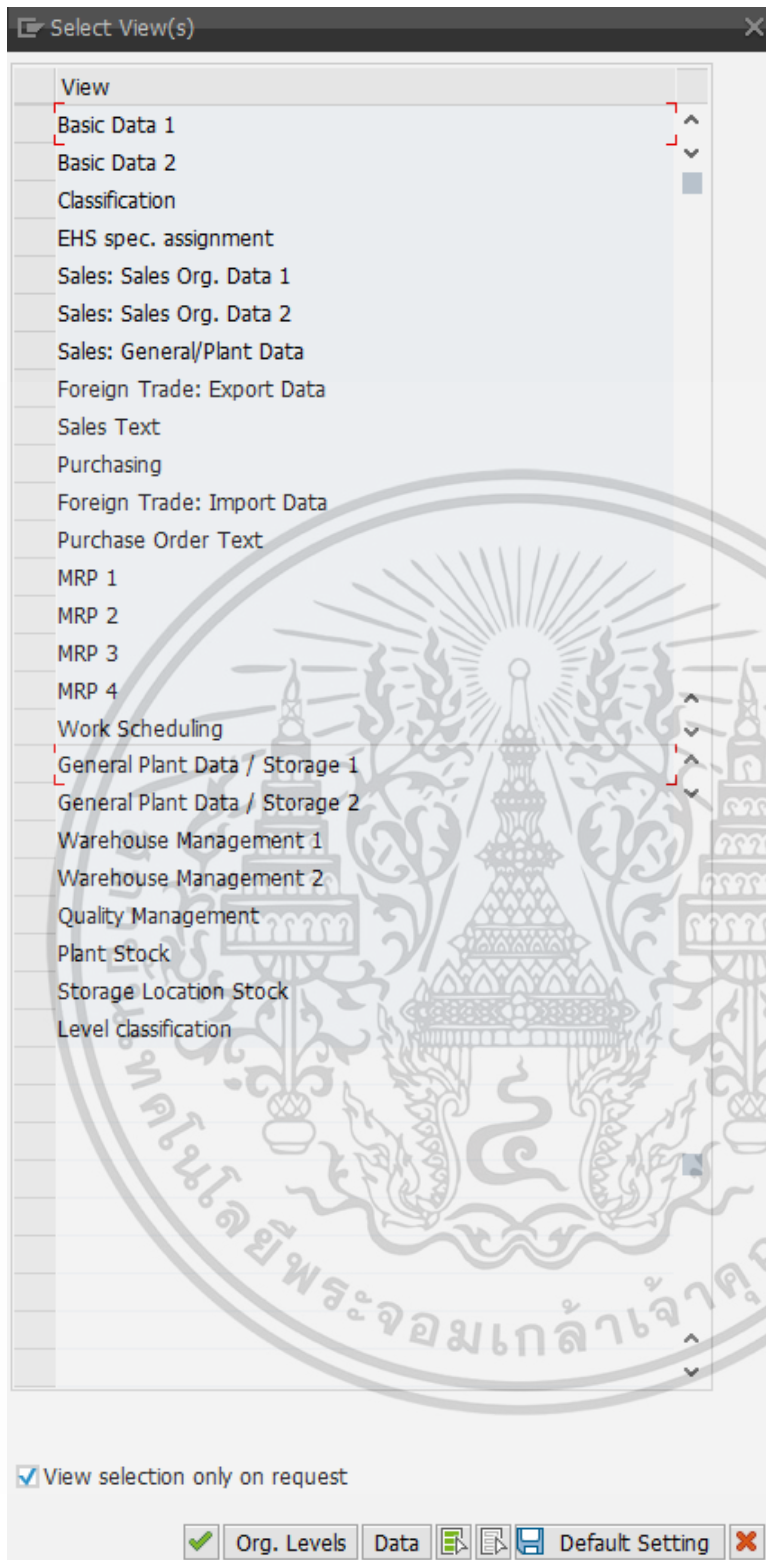


Figure 3 : SAP / MM03

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Additional Data Org. Levels Changes Contact persons

Basic data 1 Basic data 2 Classification EHS spec. assignment Sales: sales org. 1 Sales: sales org. 2

Material

Basic data: General data

Brand

Authorization Group

General Data

Base Unit of Measure	PC	Piece	Material Group	M35030
Division	00		Condition grp.	
X-plant matl status	F		Lab/Office	L38
			Prod.hierarchy	4167203002
			Valid from	
			GenItemCatGroup	NORM Standard item
			spec.mat.flag	

batch management requirement

Assignments

Indenture no.	28AKCF0732	Diaphragm spring,clutch componentart, Self Adjusting Clutch, fin...
eClass-Code	28-01-91-90	Automobile (parts, unclassified)
short name	04124	

Designations

Parttype	Partnumber	point vers
Article name		
Basic design		
Root type		Overview
Catalog short.		

For this catalog shortdescr. is the article name above std version

Dimensions/EANs

Gross Weight	970.000	Weight unit	G
Net Weight	970.000		
Volume	0.000	Volume unit	
Size/dimensions			
EAN/UPC		EAN Category	

Basic Data Texts

Languages Maintained 0 Basic Data Text Language:

Figure 4 : SAP/MM03/Basic Data 1

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Additional Data Org. Levels Changes Contact persons

Basic data 1 Basic data 2 Classification EHS spec. assignment Sales: sales org. 1 Sales: sales org...

Material

Other Data

Prod./insp. memo		Ind. Std Desc.	
Basic material	58CRV4		
Maintenance flag	S	Anti-Dumping	<input type="checkbox"/>

Design Drawing

Document		Document type		Doc.vers.	
		Page format			

Additional Data Technical responsibility

Additional Data

ref.weighing type	2	<input type="checkbox"/> Standard des.	
No. of Diff. Days	999	Date Last Weighing	28.08.2009
Following type	W/o seq.categories	GPSD Product Group	X99
Fol.type verif.		Classification concept	3
Ref. MPN		special mat. flag	<input type="checkbox"/>

Issue of test equipment

X-plant test cycle	0	<input type="checkbox"/> Calibration Req.	
--------------------	---	---	--

Characteristics

Base material	
SAP Material number	
Material type	ERZE
LuK Material no. Hamm	

Client-specific configuration

Cross-plant CM	<input type="checkbox"/>	<input type="checkbox"/> Material is configurable	
<input type="checkbox"/> Variant		Configure variant	

Figure 5 : SAP/MM03/Basic Data 2

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

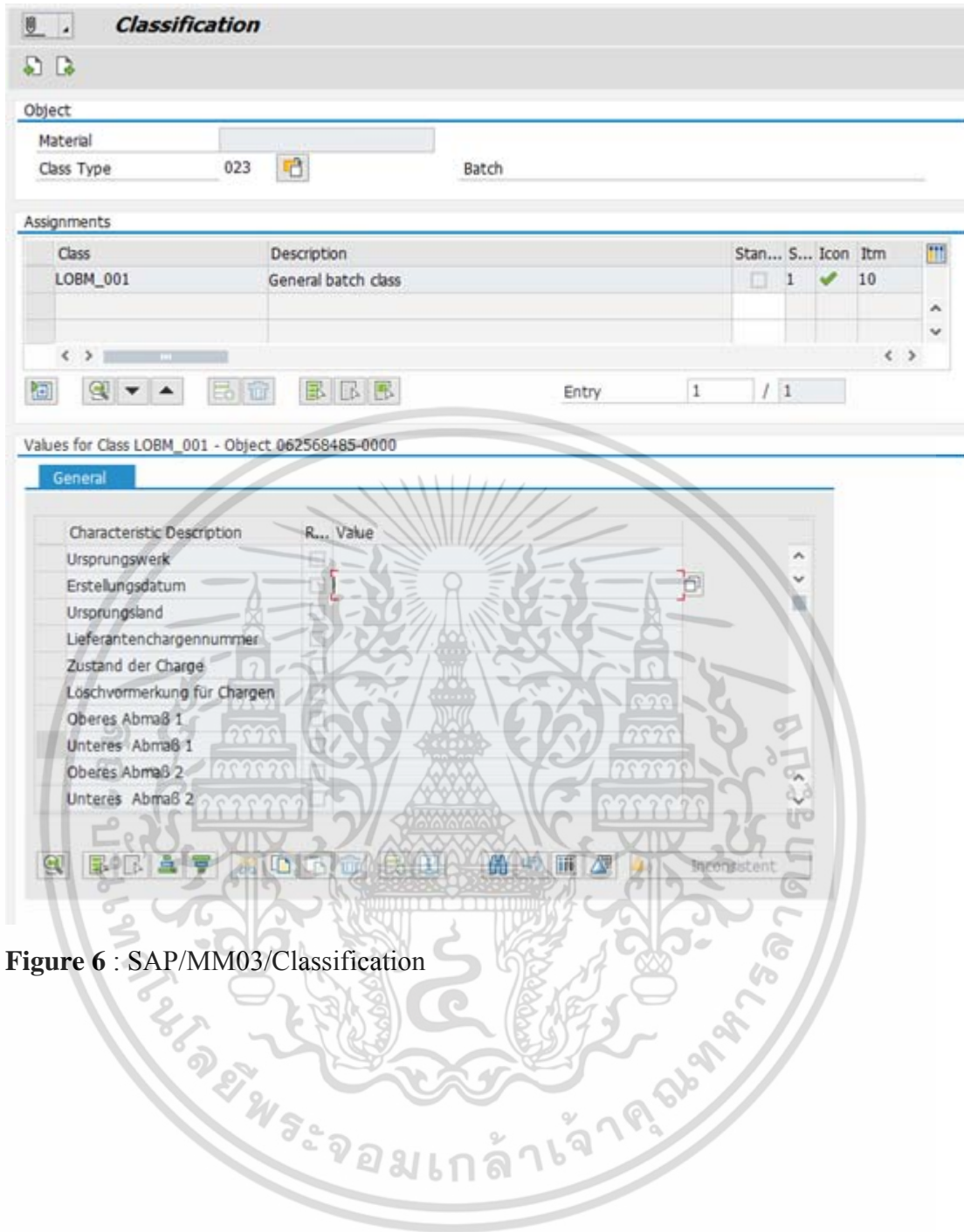


Figure 6 : SAP/MM03/Classification

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

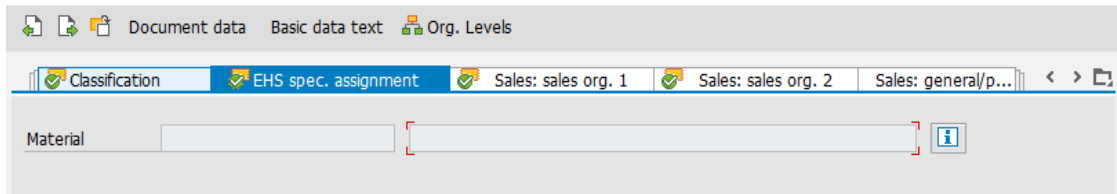


Figure 7 : SAP/MM03/EHS spec.assignment

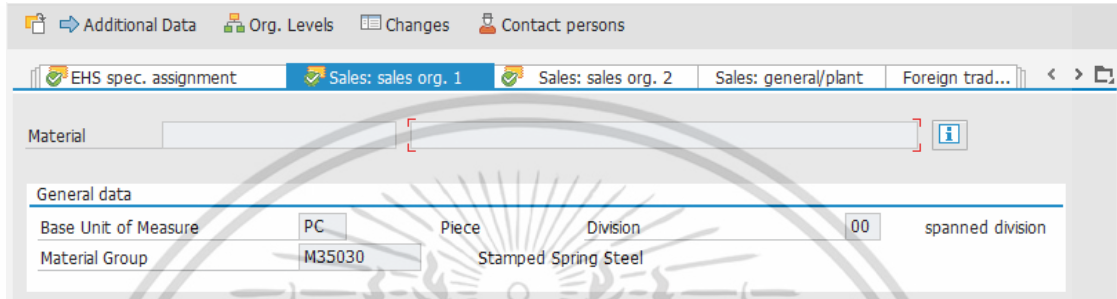


Figure 8 : SAP/MM03/Sales: sales org.1

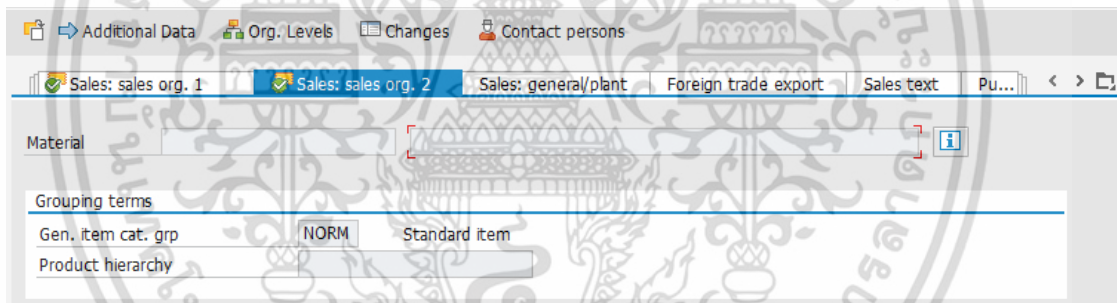


Figure 9 : SAP/MM03/Sales: sales org.2

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Additional Data Org. Levels Changes Contact persons

Sales: sales org. 2 Sales: general/plant Foreign trade export Sales text Purchasing Foreign tr...

Material

Plant

General data

Base Unit of Measure	PC	Piece	Replacement part	<input type="checkbox"/>
Gross Weight	970.000	G	Material freight grp	<input type="text"/>
Net Weight	970.000		<input type="checkbox"/> Appr.batch rec. req.	
Availability check	ZP	No check	<input type="checkbox"/>	
		Core Flag	<input type="checkbox"/>	

Batch management

Shipping data (times in days)

Trans. Grp	0001	standard	LoadingGrp	0001	standard
Setup time	0.00	Proc. time	0.00	Base qty	0 PC

Packaging material data

Matl Grp Pack.Matls	Z001	Maximum level	0
Allowed pkg volume	0.000	Stackability factor	0
<input type="checkbox"/> Closed		Excess wt tolerance	0.0
		Excess volume tol.	0.0

General plant parameters

<input checked="" type="checkbox"/> Neg.stocks	Profit.Center	P-0376-012	SerialNoProfile	<input type="text"/>	DistProf	<input type="text"/>
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Figure 10 : SAP/MM03/Sales: general/plant

Additional Data Org. Levels Changes Contact persons

Sales: general/plant Foreign trade export Sales text Purchasing Foreign trade import Purcha...

Material

Plant

Foreign trade data

Comm./imp. code no.	87089360000	For vehicles of heading 87.03	Un	KG
Export/import group	<input type="text"/>			
CAS number (pharm.)	<input type="text"/>			
PRODCOM no.	<input type="text"/>			
Control code	<input type="text"/>			

Origin / EU market organization / preferences

Country of origin	<input type="text"/>	Region of origin	<input type="text"/>
CAP product list no.	<input type="text"/>		
CAP prod. group	<input type="text"/>		
Preference status	Not maintained	<input type="button" value="Customs preferences"/>	
Vendor decl. status	Not maintained	Anti-Dumping	<input type="checkbox"/>

Legal control

ExemptionCertificate	<input type="checkbox"/>	Exemption cert. no.	<input type="text"/>
Iss.date of ex.cert.	<input type="text"/>	<input type="button" value="Legal control"/>	
<input type="checkbox"/> Military goods			

Figure 11 : SAP/MM03/Foreign trade export

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Additional Data Org. Levels Changes Contact persons

Sales text Purchasing Foreign trade import Purchase order text MRP 1 MRP 2 M...

Material
Plant

General data

Base Unit of Measure	PC	Piece	Order Unit		Var. OUn	
Purchasing Group	I92		Material Group	M35030		
Plant-sp.matl status	F		Valid from			
Tax ind. f. material	1					
Material freight grp						<input checked="" type="checkbox"/> Autom. PO
<input checked="" type="checkbox"/> Batch management						

Purchasing values

Purchasing value key	0009		Shipping Instr.			
1st Reminder/Exped.	7	days	Cor.und/overdel	0.0	percent	
2nd Reminder/Exped.	14	days	Underdel. Tolerance	20.0	percent	
3rd Reminder/Exped.	21	days	Overdeliv. Tolerance	20.0	percent	
StdValueDelivDateVar	5	days	Min. Del. Qty in %	80.0	percent	
			<input type="checkbox"/> Untd. Overdelivery	<input type="checkbox"/> Acknowledgment Reqd		

Other data / manufacturer data

GR Processing Time	1	days		<input type="checkbox"/> Critical Part	
Quota arr. usage			<input checked="" type="checkbox"/> Source list	JIT Sched. Indicator	
Mfr Part Number				Mfr Part Profile	
				Manufact.	

Figure 12 : SAP/MM03/Purchasing

Additional Data Org. Levels Changes Contact persons

Purchasing Foreign trade import Purchase order text MRP 1 MRP 2 MRP 3

Material
Plant

Foreign trade data

Comm./imp. code no.	87089360000	For vehicles of heading 87.03	Un	KG
Export/import group				
CAS number (pharm.)				
PRODCOM no.				
Control code				

Origin / EU market organization / preferences

Country of origin		Region of origin	
CAP product list no.			
CAP prod. group			
Preference status	Not maintained	Customs tariff prefs	
Vendor decl. status	Not maintained		

Legal control

ExemptionCertificate		Exemption cert. no.	
Iss.date of ex.cert.			
<input type="checkbox"/> Military goods		Legal control	

Mfr Part Profile
Mfr Part Number Manufact.

Figure 13 : SAP/MM03/Foreign trade import

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Additional Data Org. Levels Changes Contact persons

Purchase order text MRP 1 MRP 2 MRP 3 MRP 4 Plant data / stor. 1 Plant d...

Material

Plant

General Data

Base Unit of Measure	PC	Piece	MRP group	<input type="text"/>
Purchasing Group	I92		ABC Indicator	A
Plant-sp.matl status	F		Valid from	<input type="text"/>
			XYZ Indicator	<input type="text"/>

MRP procedure

MRP Type	P1	MRP, fixing type -1-	
Reorder Point	0		Planning time fence
Planning cycle	<input type="text"/>		MRP Controller
			18
			202

Lot size data

Lot size	05	5 Days lot size	
Minimum Lot Size	0		Maximum Lot Size
			0
Assembly scrap (%)	0.00		Maximum stock level
			0
Rounding Profile	<input type="text"/>		Takt time
Unit of Measure Grp	<input type="text"/>		0
			Rounding value
			2,000

MRP areas

MRP area exists MRP areas

Figure 14 : SAP/MM03/MRP 1

Additional Data Org. Levels Changes Contact persons

MRP 1 MRP 2 MRP 3 MRP 4 Plant data / stor. 1 Plant data / stor. 2 Warehouse...

Material

Plant

Other Data

production type	<input type="text"/>
Segment Number	012000
Product Manager	<input type="text"/>

Procurement

Procurement type	F	Batch entry	<input type="text"/>
Special procurement	ZC	Prod. stor. location	1001
Quota arr. usage	<input type="text"/>	Default supply area	<input type="text"/>
Backflush	<input type="text"/>	Storage loc. for EP	0100
JIT delivery sched.	<input type="text"/>	Stock det. grp	<input type="text"/>
<input type="checkbox"/> Co-product		Stop Supply Chain at this plant	
<input type="checkbox"/> Bulk Material		<input type="button" value="Display Supply Chain"/>	
<input type="checkbox"/> Cont. Procurement			

Scheduling

In-house production	0	days	Planned Delv. Time	18	days
GR Processing Time	1	days	Planning calendar	<input type="text"/>	
SchedMargin key	000				

Net requirements calculation

Safety Stock	0	Service level (%)	0.0
Min safety stock	0	Coverage profile	<input type="text"/>
Safety time ind.	2	Safety time/act.cov.	5
STime period profile	<input type="text"/>		

Figure 15 : SAP/MM03/MRP 2

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Additional Data Org. Levels Changes Contact persons

MRP 2 MRP 3 MRP 4 Plant data / stor. 1 Plant data / stor. 2 Warehouse mgmt 1 W...

Material

Plant

Forecast Requirements

Period Indicator Fiscal Year Variant Splitting indicator

Planning

Strategy group

Consumption mode

Fwd consumption per.

Planning material

Plng conv. factor

Max Dyn Issue

Capacity reqmts

Bwd consumption per.

Mixed MRP

Planning plant

Planning matl BUnit

Kontingent:

Availability check

Availability check Tot. repl. lead time days

Cross-project

Plant-specific configuration

ConfigurableMaterial

Variant

Planning variant

Additional data

Standard type

Figure 16 : SAP/MM03/MRP 3

Additional Data Org. Levels Changes Contact persons

MRP 3 MRP 4 Plant data / stor. 1 Plant data / stor. 2 Warehouse mgmt 1 Warehouse mgmt 2

Material

Plant

BOM explosion/dependent requirements

Selection method

Individual/coll.

Version Indicator

Component scrap (%)

Requirements group

MRP dep.requirements

Discontinued parts

Discontin. ind.

Eff.-out

Use-up dat

Follow-up matl

Repetitive manufacturing / assembly / deployment strategy

Repetitive mfg REM profile

Fair share rule

Push distribution

Action control

Deployment horizon

Average plant stock

Material memo

Material memo exists

Figure 17 : SAP/MM03/MRP 4

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Additional Data Org. Levels Changes Contact persons

MRP 4 Plant data / stor. 1 Plant data / stor. 2 Warehouse mgmt 1 Warehouse mgmt 2 Qua...

Material

Plant

General data

Base Unit of Measure	PC	Piece	Unit of issue	<input type="text"/>
Temp. conditions	<input type="text"/>		Storage conditions	<input type="text"/>
Container reqmts	<input type="text"/>		Haz. material number	<input type="text"/>
			Number of GR slips	0
Label type	M7	Lab.form	Z1	<input type="checkbox"/> Appr.batch rec. req.

Batch management

Shelf life data

Max. Storage Period	0	Time unit	<input type="text"/>
Min. Rem. Shelf Life	0	Total shelf life	0
Period Ind. for SLED	D	Rounding rule SLED	<input type="text"/>
Storage percentage	0		

FIFO

Loose FIFO Time loose FIFO 30 Days

FIFO

ATS relevant Umpack relevant

Figure 18 : SAP/MM03/Plant data / stor.1

Additional Data Org. Levels Changes Contact persons

Plant data / stor. 1 Plant data / stor. 2 Warehouse mgmt 1 Warehouse mgmt 2 Quality manage...

Material

Plant

Weight/volume

Gross Weight	970.000	Weight unit	G
Net Weight	970.000		
Volume	0.000	Volume unit	<input type="text"/>
Size/dimensions	<input type="text"/>		

General plant parameters

<input checked="" type="checkbox"/> Neg. stocks in plant	Log. handling group	<input type="text"/>
Serial no. profile	Distr. profile	<input type="text"/>
Profit Center	Stock determ. group	<input type="text"/>
ASN: keep nested HU or conversion to plain HU		fa... v

Figure 19 : SAP/MM03/Plant data / stor.2

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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2.6 Related research

(Saili, Yao, & Kie, 2013) Studied on ‘Inventory Management and Logistics cost reduction’ The research om high return rate of herbal medicine due to long stock inventory causing short product life time when reach customer. This using fishbone analysis to address the problem and ABC analysis to identify the important of each items.

(Akcan & Kokangul, 2012) Studies on arrivals of the patient there are several lengths of stays and materials were random required. By using reorder point can help the hospital to manage the level of inventory by service level and the lead-time period which can be easily adapted to any changes on arrival of the patient..

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Root Cause Analysis (RCA)

(Verma, 2015) Root Cause Analysis is often used to help us answer the question of why the problem happens and be able to determine what happened, why it happen and how we can prevent it..

The three basic types of causes

- Physical causes - Tangible, material items failed in some way
- Human causes – are we did something wrong
- Organizational causes - A system, process, or policy that people use to make decisions or do their work is fault

The Root Cause Analysis Process

Step One: Define the Problem

Step Two: Collect Data

Step Three: Identify Possible Causal Factors

Step Four: Identify the Root Cause(s)

Step Five: Recommend and Implement Solutions

Step One: Define the Problem

In this company, the packaging is maintained in a BOM (Bill of Material) like other Raw materials those used in a production line. Packaging materials are physical moved to production area with whole pallets quantities. Number of inventory or stock will be deducted/consumed only by the time that production finish their assembly and do the packing according to packing instruction – once they have full box quantity, production will do Good received at FG (Finish Goods) level then system now calculate/backflush the packaging usage according to the BOM per one box quantity and deduct stock in SAP system. But there is always some modification of packaging material during the packing process, so system consumption does not align with real usage.

When the system cannot be trusted, people start to calculate consumption and usage manually by using customer order forecast. Together with long transportation time. So by the time that forecasts come real - Company cannot react anymore – inventory immediate cumulated up

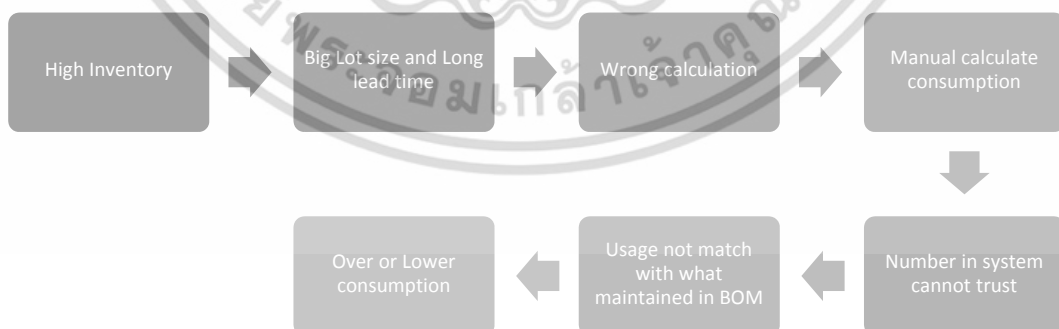


Figure 20 : Problem statement

Material BOM Edit Goto Extras Environment Settings System Help

Display material BOM: General Item Overview

Subitems New Entries Header Validity Addt. Functions

Material: 211804380-0000-80 1627-0G16-01 Repair Set P.Car#Y
 Plant:
 Alternative BOM: 1
 Base quantity: 48 PC

Item	ICt	Component	Component description	Quantity	Un	A...	SIs	Valid From	Valid to	Change No.	Chg No. To	Item ID	P...
000P	D		Rep.satz SET PKW	48	PC			25.02.2016	31.12.9999			00000007	<input type="checkbox"/>
0010	L	211804380-0000	L-01627-0G16-01 Repair Set P.Car	48	PC	✓		25.02.2016	31.12.9999			00000001	<input type="checkbox"/>
0040	L	049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	19	PC			25.02.2016	31.12.9999			00000004	<input type="checkbox"/>
0050	L	049899651-0000	P-03-PB05 Bag 1050X1250-1800-PE	1	PC			25.02.2016	31.12.9999			00000005	<input type="checkbox"/>
0070	L	049044583-0000	P-17-9990007990-GR7 Box 390X368X75-LUK	48	PC			06.07.2016	31.12.9999			00000008	<input type="checkbox"/>
0080	L	049899490-0000	P-37-L122 Insert 1150X950-8R-WP	3	PC			06.07.2016	31.12.9999			00000009	<input type="checkbox"/>
0090	L	049899562-0000	P-42-SR-V06 Body 1180X980X585-8R-WP	1	PC			06.07.2016	31.12.9999			00000010	<input type="checkbox"/>
0100	L	049899660-0000	P-27-ZUS001 Film 1200X1000X0.1-PE-LD	1	PC			06.07.2016	31.12.9999			00000011	<input type="checkbox"/>
0110	L	049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	1	PC			06.07.2016	31.12.9999			00000012	<input type="checkbox"/>
0120	L	049899694-0000	P-38-H04 SlipLid 1210X1010X150-H-4-8R-WP	1	PC			06.07.2016	31.12.9999			00000013	<input type="checkbox"/>
0130	L	056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	1	PC			06.07.2016	31.12.9999			00000014	<input type="checkbox"/>
0140	L	063843820-0000	P-42-K0035 Protector 60X3X100-VP	8	PC			06.07.2016	31.12.9999			00000015	<input type="checkbox"/>
0150	L	068672101-0000	P-35-VET1000 Label 210X140-OR-PAP	4	PC			06.07.2016	31.12.9999			00000016	<input type="checkbox"/>

Position... Initial Entry 1 / 13

CS03 sapep111 OVR

Figure 21 : BOM in SAP/CS03

Back flush Sample BOM

0 FG

000P	D		Rep.satz SET PKW	Usage	STOCK
10	L	211804380-0000	L-01627-0G16-01 Repair Set P.Car	48	1,000
40	L	049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	19	1,000
50	L	049899651-0000	P-03-PB05 Bag 1050X1250-1800-PE	1	1,000
70	L	049044583-0000	P-17-9990007990-GR7 Box 390X368X75-LUK	48	1,000
80	L	049899490-0000	P-37-L122 Insert 1150X950-BR-WP	3	1,000
90	L	049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	1	1,000
100	L	049899660-0000	P-27-ZUS001 Film 1200X1000X0.1-PE-LD	1	1,000
110	L	049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	1	1,000
120	L	049899694-0000	P-38-H04 SlipLid 1210X1010X150-H-4-BR-WP	1	1,000
130	L	056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	1	1,000
140	L	063843820-0000	P-42-K0035 Protector 60X3X100-VP	8	1,000
150	L	068672101-0000	P-35-VET1000 Label 210X140-OR-PAP	4	1,000

1

Figure 22 : Sample Backflush - Physical from WH to Production are

Back flush Sample BOM

0 FG

000P	D		Rep.satz SET PKW	Usage	STOCK
10	L	211804380-0000	L-01627-0G16-01 Repair Set P.Car	48	1,000
40	L	049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	19	1,000
50	L	049899651-0000	P-03-PB05 Bag 1050X1250-1800-PE	1	1,000
70	L	049044583-0000	P-17-9990007990-GR7 Box 390X368X75-LUK	48	1,000
80	L	049899490-0000	P-37-L122 Insert 1150X950-BR-WP	3	1,000
90	L	049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	1	1,000
100	L	049899660-0000	P-27-ZUS001 Film 1200X1000X0.1-PE-LD	1	1,000
110	L	049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	1	1,000
120	L	049899694-0000	P-38-H04 SlipLid 1210X1010X150-H-4-BR-WP	1	1,000
130	L	056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	1	1,000
140	L	063843820-0000	P-42-K0035 Protector 60X3X100-VP	8	1,000
150	L	068672101-0000	P-35-VET1000 Label 210X140-OR-PAP	4	1,000

2

Figure 23: Sample Backflush - Production using Packaging materials

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Back flush Sample BOM

48 FG

000P	D		Rep.satz SET PKW	Usage	STOCK
10	L	211804380-0000	L-01627-0G16-01 Repair Set P.Car	48	952
40	L	049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	19	981
50	L	049899651-0000	P-03-PB05 Bag 1050X1250-1800-PE	1	999
70	L	049044583-0000	P-17-9990007990-GR7 Box 390X368X75-LUK	48	952
80	L	049899490-0000	P-37-L122 Insert 1150X950-BR-WP	3	997
90	L	049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	1	999
100	L	049899660-0000	P-27-ZUS001 Film 1200X1000X0.1-PE-LD	1	999
110	L	049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	1	999
120	L	049899694-0000	P-38-H04 SlipLid 1210X1010X150-H-4-BR-WP	1	999
130	L	056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	1	999
140	L	063843820-0000	P-42-K0035 Protector 60X3X100-VP	8	992
150	L	068672101-0000	P-35-VET1000 Label 210X140-OR-PAP	4	996

3

Figure 24: Sample Backflush - when production GR FG



เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Step Two: Collect Data

Plant Analysis Edit Goto View Extras Settings System Help

Plant Analysis: Basic List

No. of Month: 12

Month	Valuated stock		ValStockValue	
Total	179,413	PC	2,968,075.75	THB
01.2016	131,103	PC	2,553,926.12	THB
02.2016	134,353	PC	2,564,301.12	THB
03.2016	141,107	PC	3,491,128.15	THB
04.2016	147,000	PC	3,589,804.54	THB
05.2016	160,470	PC	3,406,008.97	THB
06.2016	151,209	PC	2,720,279.48	THB
07.2016	155,464	PC	2,707,135.00	THB
08.2016	123,026	PC	2,401,348.08	THB
09.2016	140,807	PC	2,703,091.06	THB
10.2016	143,248	PC	2,550,781.90	THB
11.2016	126,060	PC	2,664,076.31	THB
12.2016	179,413	PC	2,968,075.75	THB

SAP >> MCBA sapep104 OVR

Figure 25 : Y2016 Monthly stock value (Details)

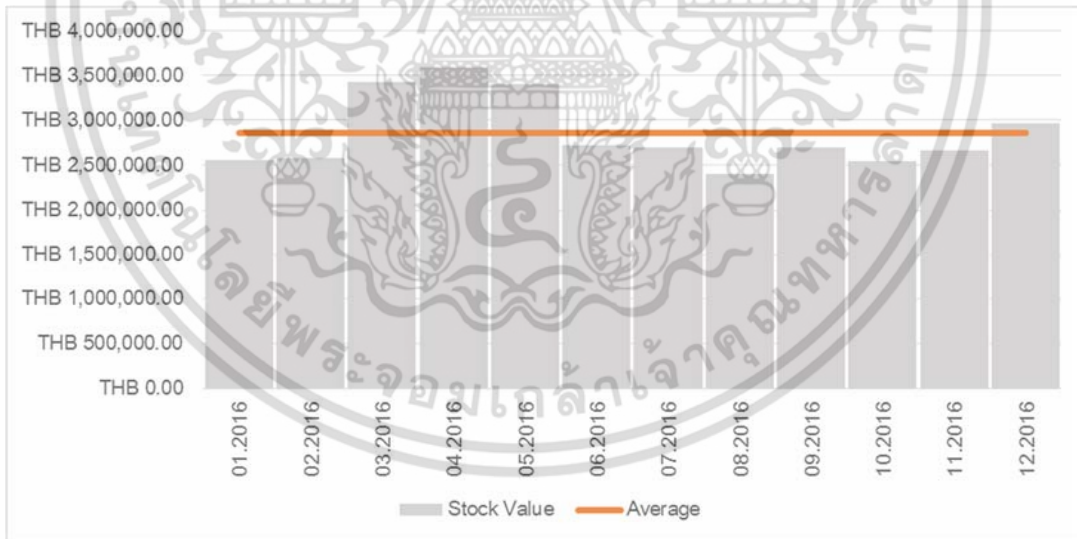


Figure 26 : Y2016 Monthly stock value

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Material	Valuated stock		ValStockValue	
Total	179,413	PC	2,968,075.75	THB
P-17-9990034990-RS	5,375	PC	433,440.00	THB
P-29-S5-65 Paper 1	40,000	PC	409,699.88	THB
P-17-HSC06 Box 120	1,062	PC	394,272.62	THB
P-42-RI03 Ring-ins	44,274	PC	358,986.43	THB
P-03-PB05 Bag 1050	4,381	PC	213,792.80	THB
P-42-SR-V06 Body 1	675	PC	135,128.89	THB
P-38-H04 SlipLid 1	2,662	PC	107,171.80	THB
P-17-9990032990-RS	7,100	PC	103,220.82	THB
P-37-L122 Insert 1	3,720	PC	76,582.02	THB
P-17-MC3X124 Box 3	2,750	PC	72,875.00	THB
P-26-PAL-03 Pallet	130	PC	71,500.00	THB
P-42-RI04 Ring-ins	8,658	PC	71,052.25	THB
P-26-PAL-13 Pallet	110	PC	67,649.53	THB
P-17-MC3X152 Box 3	2,500	PC	65,000.00	THB
P-17-9990033990-RS	3,533	PC	62,675.87	THB
P-42-RI12 Ring-ins	8,385	PC	51,517.73	THB
P-37-L102 Insert 7	4,250	PC	42,074.95	THB
P-37-M1 Insert 564	3,680	PC	40,480.00	THB
P-37-L134 Insert 7	4,250	PC	39,097.57	THB
P-17-MC1X675 Box 7	120	PC	28,800.00	THB
P-42-K0035 Protect	14,475	PC	22,415.59	THB
P-27-ZUS001 Film 1	3,020	PC	21,140.00	THB
P-42-S0137 Partiti	1,800	PC	16,200.00	THB
P-33-148127 Molded	1,750	PC	15,750.00	THB
P-38-M01 Slip bott	400	PC	12,200.00	THB
P-42-STE95 Partiti	3,000	PC	11,100.00	THB
P-26-4W081 Pallet	30	PC	7,800.00	THB
P-37-MF3 Insert 69	2,000	PC	7,700.00	THB
P-37-M3 Insert 260	4,000	PC	7,600.00	THB
P-27-ZUS130 Film 1	192	PC	1,152.00	THB

Figure 27 : Y2016 ending stock details

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Step Three: Identify Possible Causal Factors

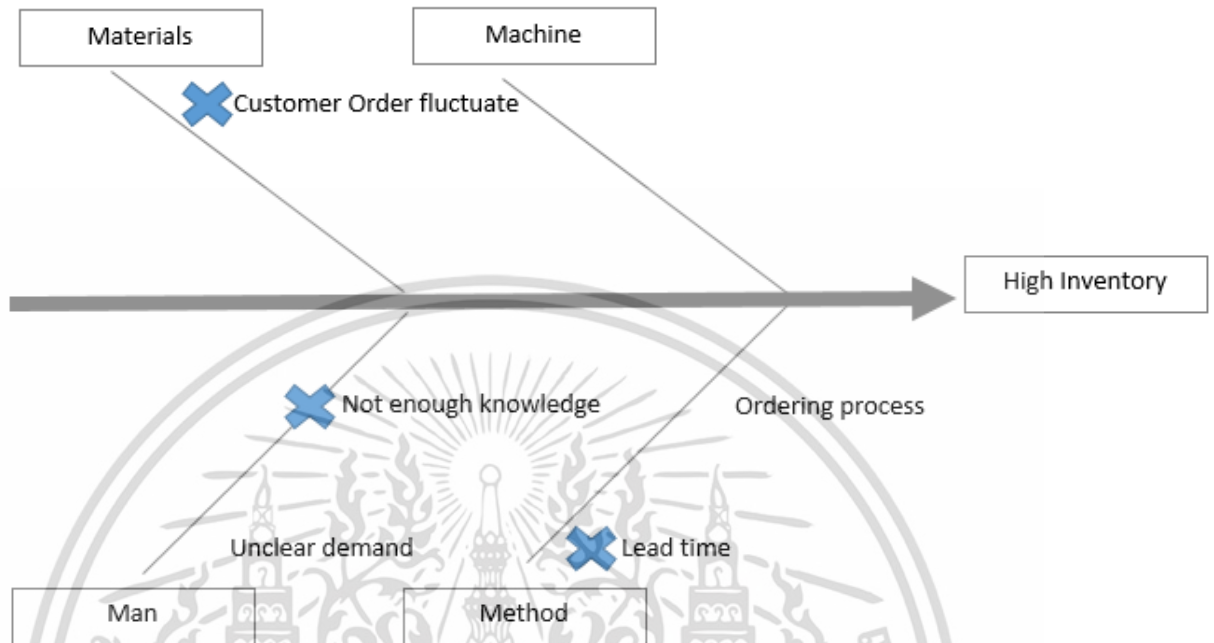


Figure 28 : Fishbone analysis

Unclear Demand

This because with Backflush method, materials should be consumed only according to what maintain in the Bill of Materials but when become to daily practice – Operator use more or less than what said in the bill of materials but never consider adjustment of those over usage. Materials are free to use in production area with no restriction or control.

Ordering process

This problem starting from the system cannot be trusted, a person who do the order placing - only check on his or her system never walk and count for physical. Also in the past, we have imported all the packaging from Germany who needs at least fifty-six day for transportation. To avoid materials shortage and lead time shortage – we ordering one-month lot size with maximum order quantities

Step Four: Identify the Root Cause(s)

In the past company used ERP / SAP system to do replenishment while physical moving and practice are not hundred percent follow the bill of materials which maintained in the system. Due to our repacking operation which those packaging can modify time to time. When the system cannot rely on, people start to calculate by themselves.

Step Five: Recommend and Implement Solutions

To change back from an automatic system with a human calculation to all automatic we need to set the parameter to instruct the system to do new calculation base on what we defined. By using Reorder point (ROP)

Reorder point is the particular level of stock when we should place the new order. In this case, the study was not considered safe time or EOQ since all the suppliers for those A-items located in Thailand with lead time of 10 days together with the fix number of MOQ.

CHAPTER 4

RESULT

Result: ABC Analysis

From the total of 30 items packaging materials – after ABC analysis we sort out to 8 A-items that will be implemented first.

Group	accum. percentage [%]	
	from	to
A	0%	80%
B	80%	95%
C	95%	100%

Table 2: ABC definition

Material Number	01.2016	02.2016	03.2016	04.2016	05.2016	06.2016	07.2016	08.2016	09.2016	10.2016	11.2016	12.2016	SUM
P-42-SR-V06 Body 1	44,042.01	-	40,038.19	20,019.10	40,038.20	20,019.10	-	38,036.29	26,425.21	1,707,028.40	-	75,472.00	2,011,118.50
P-29-S5-65 Paper 1	102,199.34	205,301.21	-	1,825.03	208,951.26	1,870.33	105,410.80	83,893.48	109,061.52	379,617.99	-	79,132.53	1,277,263.49
P-17-HSC06 Box 1200X1	63,113.32	-	51,975.67	18,562.74	73,105.53	36,552.76	54,829.15	46,787.54	18,276.38	606,775.87	-	108,927.25	1,078,906.21
P-42-R103 Ring-ins	19,865.31	32,433.16	-	-	16,216.58	-	36,303.60	3,344.36	-	476,236.24	-	16,721.78	601,121.03
P-26-PAL-13 Pallet	24,599.84	12,299.92	43,049.12	36,899.25	61,496.21	43,034.09	42,954.55	48,000.00	48,000.00	36,000.00	-	57,000.00	453,332.98
P-26-PAL-03 Pallet	33,000.00	66,000.00	33,000.00	38,500.00	22,000.00	38,500.00	38,518.19	49,672.75	11,200.00	52,080.00	-	14,560.00	397,030.94
P-37-L102 Insert 7	23,264.97	40,688.94	21,057.26	27,353.55	27,026.76	29,203.95	27,717.98	41,574.20	39,674.97	78,850.00	7,125.00	32,221.73	395,759.31
P-17-9990032990-RS	23,261.03	11,275.33	11,275.32	-	-	34,516.59	28,329.25	1,409.42	-	194,414.77	-	-	304,481.71
P-37-L122 Insert 1	19,145.52	9,263.97	9,263.97	19,549.78	18,794.51	12,529.68	15,662.10	14,593.19	15,147.57	41,850.00	-	108,000.00	283,800.29
P-42-R104 Ring-ins	15,658.08	19,597.23	8,206.54	24,619.63	-	-	-	4,413.09	31,359.21	119,430.01	-	11,483.65	234,767.44
P-38-H04 SlipLid 1	28,342.96	-	-	-	24,155.93	8,051.98	-	-	10,870.17	143,164.14	-	12,480.58	227,065.76
P-37-L134 Insert 7	6,899.57	17,936.98	14,717.52	12,415.66	17,473.88	16,087.57	20,472.59	23,924.38	13,410.51	31,500.00	-	7,103.56	181,942.22
P-03-PB05 Bag 1050X12	-	-	23,424.00	25,376.00	31,232.00	25,376.00	25,376.00	-	-	-	-	16,104.00	146,888.00
P-03-PB05 Bag 1050	-	-	23,424.00	25,376.00	31,232.00	25,376.00	25,376.00	-	-	-	-	16,104.00	146,888.00
P-17-9990033990-RS	24,434.88	-	-	-	-	13,981.63	5,915.18	2,764.64	-	96,463.52	-	-	143,559.85
P-42-R112 Ring-ins	12,994.63	24,576.14	-	-	34,406.59	1,843.21	614.40	-	-	45,465.85	-	4,835.36	124,736.18
P-33-148127 Molded	29,250.00	13,500.00	-	-	-	-	-	-	-	-	-	-	42,750.00
P-17-MC3X152 Box 3	13,000.00	26,000.00	-	1,300.00	-	-	-	-	-	-	-	-	40,300.00
P-42-R0035 Protect	193.57	1,089.26	-	-	20,736.00	-	-	3,564.00	234.00	7,248.00	-	-	33,064.83
P-27-ZUS001 Film 1	-	-	7,000.00	7,000.00	-	3,926.30	-	-	-	3,926.30	-	2,201.00	24,053.60
P-17-MC1X675 Box 7	9,600.00	9,600.00	-	3,600.00	-	-	-	-	-	-	-	-	22,800.00
P-26-4W081 Pallet	15,600.00	4,680.00	-	1,820.00	-	-	-	-	-	-	-	-	22,100.00
P-38-M01 Slip bott	-	12,200.00	-	457.50	-	-	-	-	-	-	-	-	12,657.50
P-17-MC3X124 Box 3	6,625.00	-	-	-	-	-	-	-	-	-	-	-	6,625.00
P-37-M3 Insert 260	-	3,800.00	-	95.00	-	-	-	-	-	-	-	-	3,895.00
P-37-M1 Insert 564	3,520.00	-	-	330.00	-	-	-	-	-	-	-	-	3,850.00
P-42-S0137 Partiti	1,800.00	-	-	630.00	-	-	-	-	-	-	-	-	2,430.00
P-27-ZUS130 Film 1	-	48.00	-	-	-	-	-	-	-	-	-	-	48.00
P-37-MF3 Insert 69	-	-	-	-	-	-	-	-	-	-	-	-	-
P-42-STE95 Partiti	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3 : Monthly consumption

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Material Number	Annual turnover [THB]	Percentage [%]	accumulated [%]	ABC
P-42-SR-V06 Body	THB 2,011,118.50	24%	24%	A
P-29-S5-65 Paper 1	THB 1,277,263.49	16%	40%	A
P-17-HSC06 Box 1	THB 1,078,906.21	13%	53%	A
P-42-RI03 Ring-ins	THB 601,121.03	7%	60%	A
P-26-PAL-13 Pallet	THB 453,332.98	6%	66%	A
P-26-PAL-03 Pallet	THB 397,030.94	5%	71%	A
P-37-L102 Insert 7	THB 395,759.31	5%	76%	A
P-17-9990032990-R	THB 304,481.71	4%	79%	A
P-37-L122 Insert 1	THB 283,800.29	3%	83%	B
P-42-RI04 Ring-ins	THB 234,767.44	3%	86%	B
P-38-H04 SlipLid 1	THB 227,065.76	3%	88%	B
P-37-L134 Insert 7	THB 181,942.22	2%	91%	B
P-03-PB05 Bag 105	THB 146,888.00	2%	92%	B
P-03-PB05 Bag 105	THB 146,888.00	2%	94%	B
P-17-9990033990-R	THB 143,559.85	2%	96%	C
P-42-RI12 Ring-ins	THB 124,736.18	2%	97%	C
P-33-148127 Molde	THB 42,750.00	1%	98%	C
P-17-MC3X152 Box	THB 40,300.00	0%	98%	C
P-42-K0035 Protect	THB 33,064.83	0%	99%	C
P-27-ZUS001 Film 1	THB 24,053.60	0%	99%	C
P-17-MC1X675 Box	THB 22,800.00	0%	99%	C
P-26-4W081 Pallet	THB 22,100.00	0%	100%	C
P-38-M01 Slip bott	THB 12,657.50	0%	100%	C
P-17-MC3X124 Box	THB 6,625.00	0%	100%	C
P-37-M3 Insert 260	THB 3,895.00	0%	100%	C
P-37-M1 Insert 564	THB 3,850.00	0%	100%	C
P-42-S0137 Partiti	THB 2,430.00	0%	100%	C
P-27-ZUS130 Film 1	THB 48.00	0%	100%	C
P-37-MF3 Insert 69	THB -	0%	100%	C
P-42-STE95 Partiti	THB -	0%	100%	C

Table 4 : ABC analysis result

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
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Result: ROP (Re-Order Point) calculation

$$\text{Reorder Point} = (\text{Usage} \times \text{Lead Time})$$

Equation 4 : ROP without Safety stock

Part Number	01	02	03	04	05	06	07	08	09	10	11	12	Total
P-42-RI03 Ring-ins	2,000		4,000		400	3,080		2,000			4,000	630	16,110
P-17-9990032990-RS			1,304		640	1,910	2,449			800	800	2,400	10,303
P-42-SR-V06 Body 1	67		48	132	190		100	200	100	200		320	1,357
P-29-S5-65 Paper 1	4,000		14,200	9,600	8,000	10,000		20,000			20,000		85,800
P-26-PAL-03 Pallet				20	90	70	70	40	70	60	120	60	600
P-17-HSC06 Box 1200X1	34		56	50	128	240	100	240	50	140		170	1,208
P-37-L102 Insert 7	3,161	750	7,300	3,867	4,200	2,800	2,950	2,730	2,763	2,127	4,110	2,350	39,108
P-26-PAL-13 Pallet				80	80	80	70	100	60	70	20	30	590

Table 5 : Annual usage per item in Pieces

Part Number	Demand per year	Demand per day (261 Days)	Lead Time	ROP
P-42-RI03 Ring-ins	16,110	61.72	10	618.00
P-17-9990032990-RS	10,303	39.48	10	395.00
P-42-SR-V06 Body 1	1,357	5.20	10	52.00
P-29-S5-65 Paper 1	85,800	328.74	10	3,288.00
P-26-PAL-03 Pallet	600	2.30	10	23.00
P-17-HSC06 Box 1200X1	1,208	4.63	10	47.00
P-37-L102 Insert 7	39,108	149.84	10	1,499.00
P-26-PAL-13 Pallet	590	2.26	10	23.00

Table 6 : ROP calculation details

Result: Implement and maintain in system

System use : ERP / SAP / EP1 (Transaction MM02 or ZPP02,)

Changing details below;

	Current	To be
MRP 1 : MRP Type	P1	VB
MRP 1 : Reorder Point	empty	(According to ROP)
MRP 2 : Backflush	1	empty

Table 7 : New parameter (SAP / MRP)

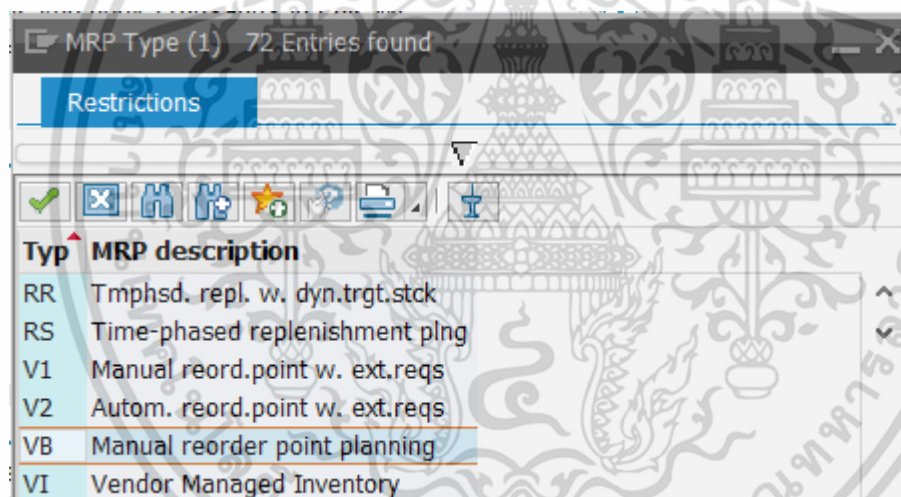


Figure 29 : Master Data MRP type

Purchase order text | **MRP 1** | MRP 2 | MRP 3 | MRP 4 | Plant data / stor. 1 | F | < >

Material: 049899562-0000 | P-42-SR-V06 Body 1180X980X585-BR-WP |

Plant:

General Data

Base Unit of Measure	PC	Piece	MRP group	BANF
Purchasing Group	R43		ABC Indicator	<input type="checkbox"/>
Plant-sp.matl status	F		Valid from	<input type="text"/>
			XYZ Indicator	<input type="checkbox"/>

MRP procedure

MRP Type	P1	Manual reorder point planning	
Reorder Point	<input type="text"/>	Planning time fence	<input type="text"/>
Planning cycle	<input type="text"/>	MRP Controller	400

Figure 30 : Master Data MRP1

MRP 1		MRP 2		MRP 3		MRP 4		Plant data / stor. 1		Plant data / stor. 2	
Material	049899562-0000		P-42-SR-V06 Body 1180X980X585-BR-WP								
Plant											
Other Data											
production type											
Segment Number	012000										
Product Manager											
Procurement											
Procurement type	F		Batch entry								
Special procurement	F0		Prod. stor. location		0400						
Quota arr. usage											
Backflush	1		Storage loc. for EP		0400						
JIT delivery sched.											

Figure 31 : Master Data MRP2

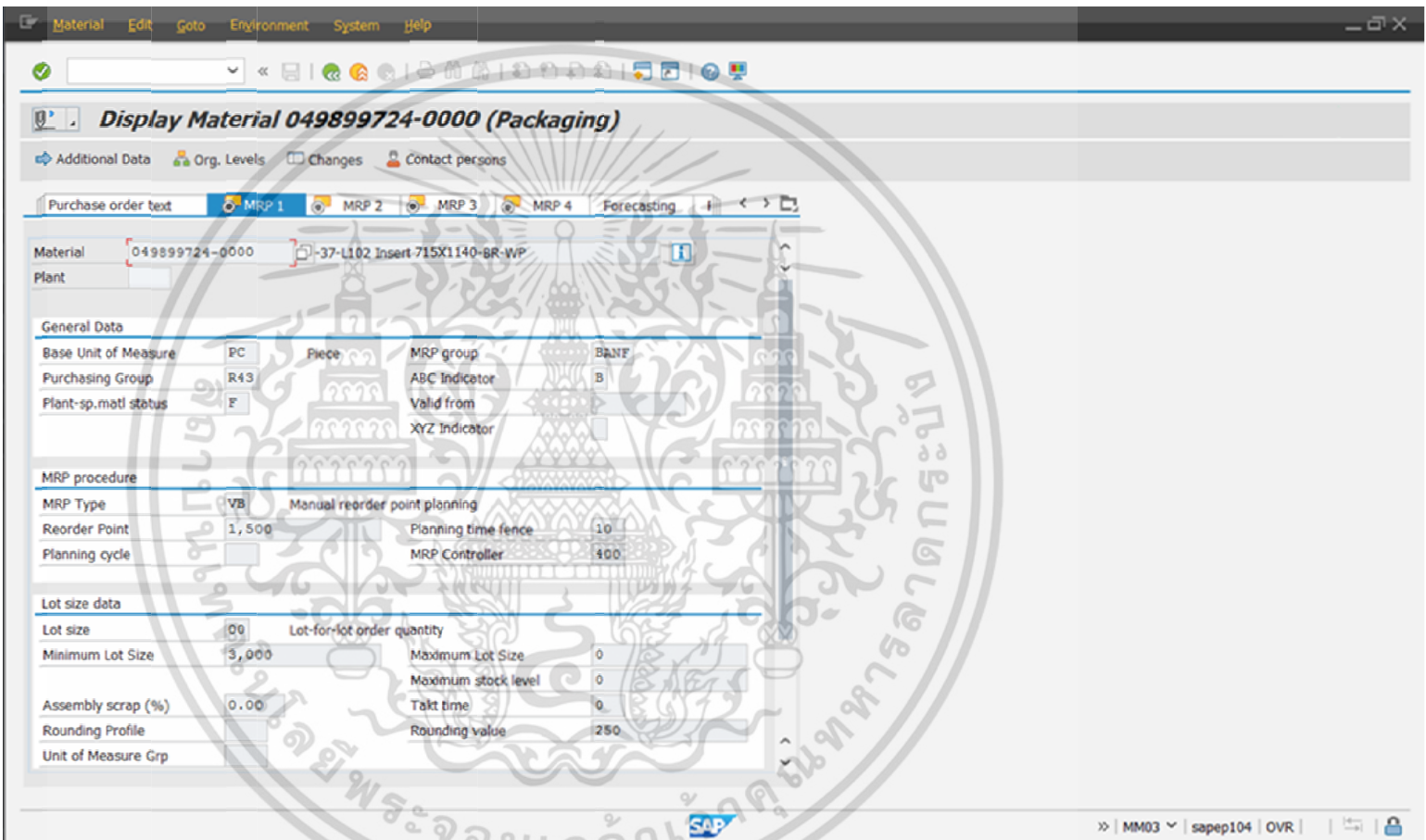


Figure 32 : System Adjustment (Sample) - Maintain ROP number

List Edit Goto Settings Environment System Help

Stock/Requirements List as of 12:41 hrs

Show Overview Tree Text P-date Validity MD04 MD05 MASTER chng mtrl sng-level mlt-level BOM

Material 049899724-0000 P-37-L102 Insert 715X1140-BR-WP

MRP area

Plant 0376 MRP type VB Material Type VERP Unit PC

A.	Date	MRP e...	MRP element data	Reschedulin...	E... Receipt/Reqmt	Available Qty	Sto...
	18.05.2017	Stock				750	
	30.05.2017	----->	End of Replen. Lead...				
	30.05.2017	SchLine	0005175009/00010		3,000	3,750	0400

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MD04 | sosep104 | OVR |

Figure 33 : System Adjustment (Sample) - Requirement generated

Summary

After implementation of this new method in January 2017, by taking away human interface together with bring back the system; 48 percent inventory value reduce from ending year 2016..

	Previous	Current
Supplier	Oversea	Local
Delivery lead time	56 days	10 days
Lot size	30 days	ROP
Consumption	Backflush (Production)	Good Issue to Cost Center (WH)
Requirement calculate	Manual excel	SAP system calculation
Requirement send out	manual	automatic
Inventory	THB 1,582,533.12	THB 1,068,997.92

Table 8 : Comparison between Old and New method

Positive	Negative
No manual calculation need	Not utilized the system
Only order when need	Not able to know real consumption
Eliminated human interface	Will always be 1 order at a time / no forecast to supplier

Table 9 : Positive and Negative

Month	Valuated stock	ValStockValue
Total	64,824 PC	1,068,997.92 THB
12.2016	97,601 PC	1,582,533.12 THB
01.2017	87,276 PC	1,543,719.11 THB
02.2017	92,454 PC	1,554,910.92 THB
03.2017	77,284 PC	1,341,481.95 THB
04.2017	65,044 PC	1,071,175.92 THB
05.2017	64,824 PC	1,068,997.92 THB

Table 10 : Monthly inventory value

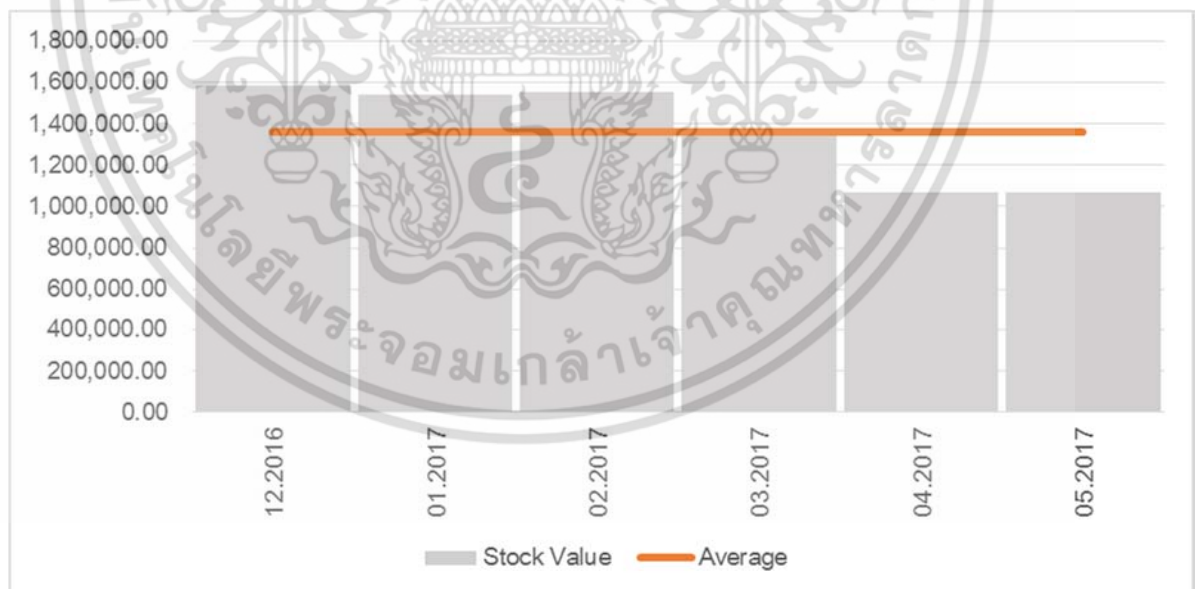


Figure 34: Monthly inventory value (Graph)

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This company started with Automatic SAP backflush method which system will deduct stock (consumption) based on data and usage maintained in the Bill of Materials (BOM) while the packaging materials were served to the production area where the packaging activities start with the pallet lot size meaning that no physical usage control. The company found that packaging materials stock in SAP system is not matched with physical, so they place the order from their manual calculation of usage and consumption with excel Then by the time at packaging material arrive in the company, they are either too less or too many.

This ROP method is a short-term solution to reduce current stock value and space. Even this approach are well fit with the current business situation and cut forty-eight percent for us but still require Human input for the ROP tricker point which can cause the error. To have the system work properly and correct, we need to set very stick rule and instruction for people to follow . in this case to have the system automatically backflush; withdraw material from warehouse by consumption base is the right method which can avoid any manual calculation. On the other hand to use this method we need to put more afford to have a person count on each material before sending them to production area to have the correct figure in a system and can guarantee that there will be no over or less physical consumption. This depends on the company decision how to deal with their current situation.

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APPENDIX



เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

ABC Analysis

Material Number	Annual turnover [THB]	Percentage [%]	accumulated [%]	ABC
P-42-SR-V06 Body 1	THB 2,011,118.50	24%	24%	A
P-29-S5-65 Paper 1	THB 1,277,263.49	16%	40%	A
P-17-HSC06 Box 1200X1	THB 1,078,906.21	13%	53%	A
P-42-RI03 Ring-ins	THB 601,121.03	7%	60%	A
P-26-PAL-13 Pallet	THB 453,332.98	6%	66%	A
P-26-PAL-03 Pallet	THB 397,030.94	5%	71%	A
P-37-L102 Insert 7	THB 395,759.31	5%	76%	A
P-17-9990032990-RS	THB 304,481.71	4%	79%	A
P-37-L122 Insert 1	THB 283,800.29	3%	83%	B
P-42-RI04 Ring-ins	THB 234,767.44	3%	86%	B
P-38-H04 SlipLid 1	THB 227,065.76	3%	88%	B
P-37-L134 Insert 7	THB 181,942.22	2%	91%	B
P-03-PB05 Bag 1050X12	THB 146,888.00	2%	92%	B
P-03-PB05 Bag 1050	THB 146,888.00	2%	94%	B
P-17-9990033990-RS	THB 143,559.85	2%	96%	C
P-42-RI12 Ring-ins	THB 124,736.18	2%	97%	C
P-33-148127 Molded	THB 42,750.00	1%	98%	C
P-17-MC3X152 Box 3	THB 40,300.00	0%	98%	C
P-42-K0035 Protect	THB 33,064.83	0%	99%	C
P-27-ZUS001 Film 1	THB 24,053.60	0%	99%	C
P-17-MC1X675 Box 7	THB 22,800.00	0%	99%	C
P-26-4W081 Pallet	THB 22,100.00	0%	100%	C
P-38-M01 Slip bott	THB 12,657.50	0%	100%	C
P-17-MC3X124 Box 3	THB 6,625.00	0%	100%	C
P-37-M3 Insert 260	THB 3,895.00	0%	100%	C
P-37-M1 Insert 564	THB 3,850.00	0%	100%	C
P-42-S0137 Partiti	THB 2,430.00	0%	100%	C
P-27-ZUS130 Film 1	THB 48.00	0%	100%	C
P-37-MF3 Insert 69	THB -	0%	100%	C
P-42-STE95 Partiti	THB -	0%	100%	C

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Material Number	01.2016	02.2016	03.2016	04.2016	05.2016	06.2016	07.2016	08.2016	09.2016	10.2016	11.2016	12.2016	SUM
P-42-SR-V06 Body 1	44,042.01	-	40,038.19	20,019.10	40,038.20	20,019.10	-	38,036.29	26,425.21	1,707,028.40	-	75,472.00	2,011,118.50
P-29-S5-65 Paper 1	102,199.34	205,301.21	-	1,825.03	208,951.26	1,870.33	105,410.80	83,893.48	109,061.52	379,617.99	-	79,132.53	1,277,263.49
P-17-HSC06 Box 1200X1	63,113.32	-	51,975.67	18,562.74	73,105.53	36,552.76	54,829.15	46,787.54	18,276.38	606,775.87	-	108,927.25	1,078,906.21
P-42-RI03 Ring-ins	19,865.31	32,433.16	-	-	16,216.58	-	36,303.60	3,344.36	-	476,236.24	-	16,721.78	601,121.03
P-26-PAL-13 Pallet	24,599.84	12,299.92	43,049.12	36,899.25	61,496.21	43,034.09	42,954.55	48,000.00	48,000.00	36,000.00	-	57,000.00	453,332.98
P-26-PAL-03 Pallet	33,000.00	66,000.00	33,000.00	38,500.00	22,000.00	38,500.00	38,518.19	49,672.75	11,200.00	52,080.00	-	14,560.00	397,030.94
P-37-L102 Insert 7	23,264.97	40,688.94	21,057.26	27,353.55	27,026.76	29,203.95	27,717.98	41,574.20	39,674.97	78,850.00	7,125.00	32,221.73	395,759.31
P-17-9990032990-RS	23,261.03	11,275.33	11,275.32	-	-	34,516.59	28,329.25	1,409.42	-	194,414.77	-	-	304,481.71
P-37-L122 Insert 1	19,145.52	9,263.97	9,263.97	19,549.78	18,794.51	12,529.68	15,662.10	14,593.19	15,147.57	41,850.00	-	108,000.00	283,800.29
P-42-RI04 Ring-ins	15,658.08	19,597.23	8,206.54	24,619.63	-	-	-	4,413.09	31,359.21	119,430.01	-	11,483.65	234,767.44
P-38-H04 SlipLid 1	28,342.96	-	-	-	24,155.93	8,051.98	-	-	10,870.17	143,164.14	-	12,480.58	227,065.76
P-37-L134 Insert 7	6,899.57	17,936.98	14,717.52	12,415.66	17,473.88	16,087.57	20,472.59	23,924.38	13,410.51	31,500.00	-	7,103.56	181,942.22
P-03-PB05 Bag 1050X12	-	-	23,424.00	25,376.00	31,232.00	25,376.00	25,376.00	-	-	-	-	16,104.00	146,888.00
P-03-PB05 Bag 1050	-	-	23,424.00	25,376.00	31,232.00	25,376.00	25,376.00	-	-	-	-	16,104.00	146,888.00
P-17-9990033990-RS	24,434.88	-	-	-	-	13,981.63	5,915.18	2,764.64	-	96,463.52	-	-	143,559.85
P-42-RI12 Ring-ins	12,994.63	24,576.14	-	-	34,406.59	1,843.21	614.40	-	-	45,465.85	-	4,835.36	124,736.18
P-33-148127 Molded	29,250.00	13,500.00	-	-	-	-	-	-	-	-	-	-	42,750.00
P-17-MC3X152 Box 3	13,000.00	26,000.00	-	1,300.00	-	-	-	-	-	-	-	-	40,300.00
P-42-K0035 Protect	193.57	1,089.26	-	-	20,736.00	-	-	3,564.00	234.00	7,248.00	-	-	33,064.83
P-27-ZUS001 Film 1	-	-	7,000.00	7,000.00	-	3,926.30	-	-	-	3,926.30	-	2,201.00	24,053.60
P-17-MC1X675 Box 7	9,600.00	9,600.00	-	3,600.00	-	-	-	-	-	-	-	-	22,800.00
P-26-4W081 Pallet	15,600.00	4,680.00	-	1,820.00	-	-	-	-	-	-	-	-	22,100.00
P-38-M01 Slip bott	-	12,200.00	-	457.50	-	-	-	-	-	-	-	-	12,657.50
P-17-MC3X124 Box 3	6,625.00	-	-	-	-	-	-	-	-	-	-	-	6,625.00
P-37-M3 Insert 260	-	3,800.00	-	95.00	-	-	-	-	-	-	-	-	3,895.00
P-37-M1 Insert 564	3,520.00	-	-	330.00	-	-	-	-	-	-	-	-	3,850.00
P-42-S0137 Partiti	1,800.00	-	-	630.00	-	-	-	-	-	-	-	-	2,430.00
P-27-ZUS130 Film 1	-	48.00	-	-	-	-	-	-	-	-	-	-	48.00
P-37-MF3 Insert 69	-	-	-	-	-	-	-	-	-	-	-	-	-
P-42-STE95 Partiti	-	-	-	-	-	-	-	-	-	-	-	-	-

Consumption / Turn over values

Consumption / Turn over quantities

Material	Material Description	Storage Location	Movement type	Material Document	Material Doc.Item	Posting Date	month	Qty in Un. of Entry	Unit of Entry
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4916493849	1	20-12-16	12	-630	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4914113890	1	24-11-16	11	-2,000	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4913243843	1	16-11-16	11	-2,000	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4905153427	1	19-08-16	8	-2,000	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4900826607	1	29-06-16	6	-1,080	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4994544623	1	15-06-16	6	-2,000	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4992520603	1	24-05-16	5	-400	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4987284160	1	28-03-16	3	-2,000	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4985250085	1	04-03-16	3	-2,000	PC
048124958-0000	P-42-RI03 Ring-insert 300X300X70-BR-WP	0400	201	4979889429	1	07-01-16	1	-2,000	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4915256013	1	07-12-16	12	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4915252506	1	07-12-16	12	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4915247436	1	07-12-16	12	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4912302685	1	07-11-16	11	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4909136193	1	04-10-16	10	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4903578877	1	30-07-16	7	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4903574002	1	30-07-16	7	-350	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4903161616	1	26-07-16	7	-499	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4903103086	1	25-07-16	7	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4900971745	1	30-06-16	6	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4900755329	1	29-06-16	6	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4900755326	1	29-06-16	6	-190	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4900252243	1	23-06-16	6	-120	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4990683437	1	03-05-16	5	-350	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4990678611	1	03-05-16	5	-190	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4990634598	1	03-05-16	5	-100	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4986168500	1	15-03-16	3	-800	PC
049048066-0000	P-17-9990032990-RS2 Box 295X293X74-LUK	0400	201	4985518036	1	08-03-16	3	-504	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4915107034	1	06-12-16	12	-220	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4914817151	1	02-12-16	12	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4911558941	1	28-10-16	10	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4910475966	1	18-10-16	10	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4907504050	1	15-09-16	9	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4906055008	1	30-08-16	8	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4904107839	1	05-08-16	8	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4901942861	1	12-07-16	7	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4992743530	1	26-05-16	5	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4991503229	1	12-05-16	5	-90	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4989850913	1	25-04-16	4	-100	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4988018546	1	05-04-16	4	-32	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4987357213	1	29-03-16	3	-40	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4986845357	1	22-03-16	3	-8	PC
049899562-0000	P-42-SR-V06 Body 1180X980X585-BR-WP	0400	201	4979890884	1	07-01-16	1	-67	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4912414087	1	08-11-16	11	-10,000	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4912370292	1	07-11-16	11	-10,000	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4903631681	1	01-08-16	8	-20,000	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4994824084	1	17-06-16	6	-10,000	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4991223257	1	10-05-16	5	-8,000	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4988248958	1	07-04-16	4	-9,600	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4987470907	1	30-03-16	3	-8,000	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4986168058	1	15-03-16	3	-6,200	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4980239166	1	12-01-16	1	-1,200	PC
049899600-0000	P-29-S5-65 Paper 1200X1000-VCI	0400	201	4979805211	1	06-01-16	1	-2,800	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4915958062	1	14-12-16	12	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4915887385	1	14-12-16	12	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4914793218	1	02-12-16	12	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4914793099	1	02-12-16	12	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4914793097	1	02-12-16	12	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4914707154	1	01-12-16	12	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4914476526	1	29-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4914206854	1	25-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4913687102	1	21-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4913686848	1	21-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4913662729	1	21-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4913243549	1	16-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4913243546	1	16-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4912781683	1	11-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4912781624	1	11-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4912666911	1	10-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4912416814	1	08-11-16	11	-10	PC

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Consumption / Turn over quantities (continue)

Material	Material Description	Storage Location	Movement type	Material Document	Material Doc.Item	Posting Date	month	Qty in Un. of Entry	Unit of Entry
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4912289857	1	07-11-16	11	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4911558076	1	28-10-16	10	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4910827258	1	21-10-16	10	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4910526998	1	18-10-16	10	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4909679560	1	10-10-16	10	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4909392344	1	06-10-16	10	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4909132040	1	04-10-16	10	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4908269812	1	23-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4907789235	1	19-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4907047596	1	09-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4906996468	1	09-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4906996260	1	09-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4906723016	1	06-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4906330751	1	01-09-16	9	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4904805369	1	15-08-16	8	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4904179189	1	08-08-16	8	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4903842346	1	03-08-16	8	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4903619685	1	01-08-16	8	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4903561786	1	30-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4903200110	1	26-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4903161988	1	26-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4903113744	1	26-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4902111269	1	14-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4901874624	1	12-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4901021603	1	01-07-16	7	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4900912006	1	30-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4900767961	1	29-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4900705539	1	28-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4999428344	1	20-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4999428342	1	20-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	49994716600	1	16-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4993766935	1	07-06-16	6	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4992955641	1	30-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4992743437	1	26-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4992353961	1	23-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4992353788	1	23-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4992353781	1	23-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4992351062	1	23-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4991745977	1	16-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4991500247	1	12-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4991500243	1	12-05-16	5	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4988482867	1	10-04-16	4	-10	PC
049899619-0000	P-26-PAL-03 Pallet 1200X1000X144-HLZ	0400	201	4987954337	1	04-04-16	4	-10	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4916373973	1	19-12-16	12	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4916280269	1	18-12-16	12	-70	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4914817484	1	02-12-16	12	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4911558949	1	28-10-16	10	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4910476212	1	18-10-16	10	-40	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4909463753	1	06-10-16	10	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4907233559	1	12-09-16	9	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4905984535	1	29-08-16	8	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4904802635	1	15-08-16	8	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4904029702	1	05-08-16	8	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4904028208	1	05-08-16	8	-40	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4903623163	1	01-08-16	8	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4903193717	1	26-07-16	7	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4901873568	1	12-07-16	7	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4900760700	1	29-06-16	6	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4994836412	1	17-06-16	6	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4994835925	1	17-06-16	6	-40	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4994791497	1	17-06-16	6	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4993217126	1	01-06-16	6	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4992014273	1	18-05-16	5	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4991494989	1	12-05-16	5	-28	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4990649853	1	03-05-16	5	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4988111766	1	06-04-16	4	-50	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4987357363	1	29-03-16	3	-38	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4986853381	1	22-03-16	3	-6	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4986845607	1	22-03-16	3	-12	PC
049899678-0000	P-17-HSC06 Box 1200X1000X600-WP	0400	201	4979890093	1	07-01-16	1	-34	PC

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Consumption / Turn over quantities (continue)

Material	Material Description	Storage Location	Movement type	Material Document	Material Doc.Item	Posting Date	month	Qty in Un. of Entry	Unit of Entry
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4916633979	1	21-12-16	12	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4916599218	1	21-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4916486764	1	20-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4916226049	1	16-12-16	12	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4916149663	1	16-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4916106274	1	15-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4915888642	1	14-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4915227561	1	07-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4915168864	1	06-12-16	12	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4914675093	1	01-12-16	12	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4914449546	1	29-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4914383722	1	28-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4914206402	1	25-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913972495	1	23-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913849403	1	22-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913784304	1	22-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913605380	1	19-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913298306	1	16-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913205981	1	15-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913151713	1	15-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4913081652	1	14-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4912677704	1	10-11-16	11	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4912399392	1	07-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4912301394	1	07-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911864431	1	02-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911864239	1	02-11-16	11	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911863816	1	02-11-16	11	-160	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911813253	1	01-11-16	11	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911617649	1	29-10-16	10	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911558759	1	28-10-16	10	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4911557953	1	28-10-16	10	-87	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4910732960	1	20-10-16	10	-140	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4910567941	1	19-10-16	10	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4910557451	1	18-10-16	10	-100	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4909679720	1	10-10-16	10	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4909463550	1	06-10-16	10	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4909114304	1	03-10-16	10	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4909057475	1	03-10-16	10	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4908862802	1	29-09-16	9	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4908609783	1	27-09-16	9	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4908526355	1	26-09-16	9	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4908185527	1	22-09-16	9	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4908101434	1	21-09-16	9	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4907527247	1	15-09-16	9	-500	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4907134371	1	12-09-16	9	-513	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4906517597	1	05-09-16	9	-500	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4906216692	1	31-08-16	8	-500	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4905803748	1	26-08-16	8	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4905556614	1	24-08-16	8	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4905305137	1	22-08-16	8	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4905230015	1	19-08-16	8	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4905054483	1	18-08-16	8	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4904836952	1	16-08-16	8	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4904560688	1	11-08-16	8	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4904475209	1	10-08-16	8	-180	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4904180790	1	08-08-16	8	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4903540194	1	29-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4903497705	1	29-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4903253051	1	27-07-16	7	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4903105339	1	25-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4902964010	1	23-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4902809394	1	21-07-16	7	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4902182248	1	14-07-16	7	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4901848482	1	11-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4901584232	1	07-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4901365511	1	05-07-16	7	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4901171614	1	04-07-16	7	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4901083317	1	01-07-16	7	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4901083314	1	01-07-16	7	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4900870752	1	30-06-16	6	-200	PC

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
 ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Consumption / Turn over quantities (continue)

Material	Material Description	Storage Location	Movement type	Material Document	Material Doc.Item	Posting Date	month	Qty in Un. of Entry	Unit of Entry
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4900662962	1	28-06-16	6	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4900164803	1	22-06-16	6	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4900072380	1	21-06-16	6	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4995044186	1	21-06-16	6	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4994879839	1	18-06-16	6	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4994603019	1	15-06-16	6	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4994265239	1	13-06-16	6	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4994092186	1	10-06-16	6	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4993811979	1	07-06-16	6	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4993644960	1	06-06-16	6	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4993560887	1	04-06-16	6	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4993159478	1	31-05-16	5	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4993032604	1	30-05-16	5	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4992649269	1	25-05-16	5	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4992569282	1	24-05-16	5	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4992435758	1	23-05-16	5	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4992053810	1	19-05-16	5	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991828331	1	17-05-16	5	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991762803	1	16-05-16	5	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991694322	1	14-05-16	5	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991229242	1	10-05-16	5	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991049966	1	07-05-16	5	-200	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991049964	1	07-05-16	5	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991049963	1	07-05-16	5	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4991038935	1	07-05-16	5	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4990936060	1	06-05-16	5	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4990768105	1	04-05-16	5	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4990496185	1	01-05-16	5	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4990486632	1	30-04-16	4	-185	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4989899460	1	25-04-16	4	-600	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4989812367	1	23-04-16	4	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4989738299	1	22-04-16	4	-300	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4989658829	1	21-04-16	4	-201	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4989579582	1	21-04-16	4	-203	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4989568901	1	21-04-16	4	-1,411	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4987862593	1	04-04-16	4	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4987860179	1	04-04-16	4	-117	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4987823987	1	02-04-16	4	-150	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4987823982	1	02-04-16	4	-150	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4987526216	1	30-03-16	3	-150	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4987526213	1	30-03-16	3	-150	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4986560506	1	18-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4986558737	1	18-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4986408195	1	17-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4986199196	1	15-03-16	3	-750	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4986144990	1	15-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4985905058	1	11-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4985791388	1	10-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4985677591	1	09-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4985636690	1	09-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4984996460	1	02-03-16	3	-2,000	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4984996235	1	02-03-16	3	-2,000	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4984981495	1	02-03-16	3	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4984586864	1	26-02-16	2	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4984433318	1	25-02-16	2	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4984434371	1	25-02-16	2	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4980080502	1	10-01-16	1	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4980047112	1	09-01-16	1	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4979937444	1	08-01-16	1	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4979888886	1	07-01-16	1	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4979805573	1	06-01-16	1	-130	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4979665081	1	05-01-16	1	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4979584351	1	04-01-16	1	-250	PC
049899724-0000	P-37-L102 Insert 715X1140-BR-WP	0400	201	4979576899	1	04-01-16	1	-1,531	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4914793211	1	02-12-16	12	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4914729757	1	01-12-16	12	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4914713287	1	01-12-16	12	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4913120827	1	15-11-16	11	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4913115990	1	15-11-16	11	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4911215067	1	25-10-16	10	-10	PC

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
 ไม่ว่าการฉ้อโกง ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

Consumption / Turn over quantities (continue)

Material	Material Description	Storage Location	Movement type	Material Document	Material Doc.Item	Posting Date	month	Qty in Un. of Entry	Unit of Entry
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4911215066	1	25-10-16	10	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4911173405	1	25-10-16	10	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4910526870	1	18-10-16	10	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4910476219	1	18-10-16	10	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4909129217	1	04-10-16	10	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4909129214	1	04-10-16	10	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4908098490	1	21-09-16	9	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4907233763	1	12-09-16	9	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4907047000	1	09-09-16	9	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4906723013	1	06-09-16	9	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4906654120	1	06-09-16	9	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4906651082	1	06-09-16	9	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4906002800	1	29-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4906002734	1	29-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4905459494	1	23-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904796914	1	15-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904796913	1	15-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904749481	1	15-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904179378	1	08-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904107837	1	05-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904056049	1	05-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4904028109	1	05-08-16	8	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4903193854	1	26-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4903190269	1	26-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4902252200	1	15-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4901873072	1	12-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4901873028	1	12-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4901265687	1	05-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4901264885	1	05-07-16	7	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4900767799	1	29-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4900703378	1	28-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4900703370	1	28-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4994928778	1	20-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4994860637	1	18-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4993811850	1	07-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4993729672	1	07-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4993195700	1	01-06-16	6	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	499298926	1	30-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4992350686	1	23-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4992207732	1	20-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4991981779	1	18-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4991745926	1	16-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4991745057	1	16-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4991583167	1	13-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4990664632	1	03-05-16	5	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4989873810	1	25-04-16	4	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4989866934	1	25-04-16	4	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4989693098	1	22-04-16	4	-10	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4989452157	1	20-04-16	4	-20	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4989452151	1	20-04-16	4	-20	PC
056846380-0000	P-26-PAL-13 Pallet 1200X1000X144-HLZ	0400	201	4989421804	1	19-04-16	4	-10	PC

เอกสารนี้เป็นเอกสารที่สงวนไว้สำหรับการใช้งานเพื่อการศึกษาเท่านั้น ไม่อนุญาตให้นำไปใช้ประโยชน์ด้านการค้า
 ไม่ว่ากรณีใดๆ ทั้งสิ้น อีกทั้งห้ามมิให้ดัดแปลงเนื้อหา และต้องอ้างอิงถึงเจ้าของเอกสารทุกครั้งที่มีการนำไปใช้

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