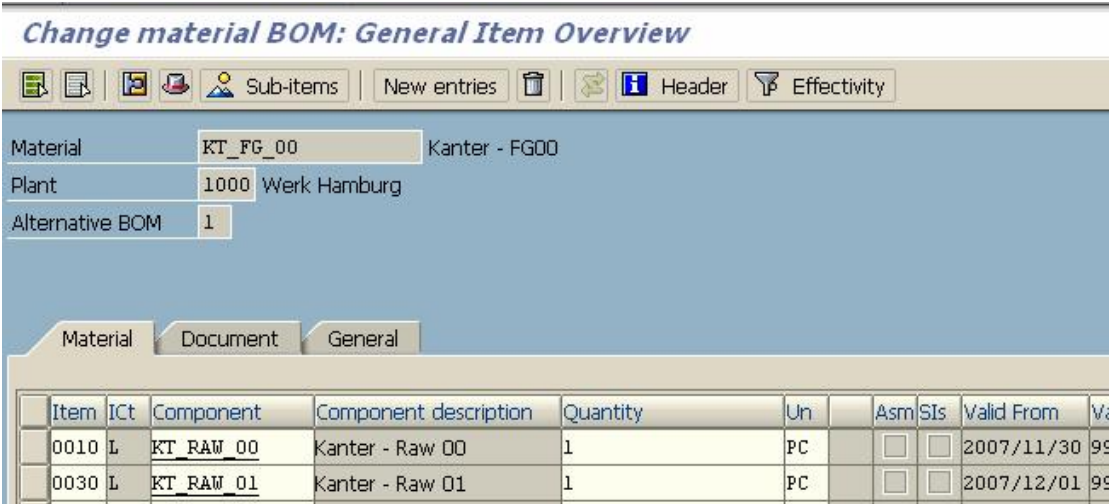


替代,这个一万家企业估计就有二万家企业需用到的名词,可见其重要性,而根据本人之经验,大概可以分为以下三种替代形式,我想这应该是关于 SAP 替代或取代的最完整的文档。

- 1. A 物料也 B 物料可以互相替代,但是由物料计划部门自由控制使用物料 A 还是使用物料 B
- 2. 在某个产品中,当物料 A 不够时,才用物料 B
- 3. 当物料 A 用完后,将永远不再用物料 B

本人就从 SAP ERP 软件的角度去介绍一下这三种方式的实现

对于第一种,是 SAP 中最容易实现的,也是用得最多的一种,参见以下



如存在以上 BOM, 假设 KT_RAW_00 与 KT_RAW_01 是替代关系,并且对两个物料设定如下:

进入 ITEM Detail

Change material BOM: Item: All data

Reference items | Sub-items | Long text

Material: **KT_FG_00** Kanter - FG00
 Plant: **1000** Werk Hamburg
 Alternative BOM: **1**

Basic Data | Status/Lng Text | Administr. | Document Assign.

BOM item

Item Number: **0010**
 Component: **KT_RAW_00** Kanter - Raw 00
 Item Category: **L** Stock item
 Item ID: **00000004**
 Sort string:
☐ Sub-item ID

Quantity Data

Quantity: **1** **PC** ☐ Fixed quantity
 Operation scrap in %: ☐ Net ID ☐ Component scrap (%)

General Data **MRP Data**

☐ Co-product ☐ Recurs. allowed ☐ Lead-time offset
AltItemGroup ☐ Recursive ☐ Oper. LT offset

你会发现这里存在一个 AltItemGroup

当我们想对某些物料设定替代时,首先需要让这些物料成为一组,这样 SAP 才能判断是那些物料可以互相替代,假设我们用 00 做为 GROUP 吧.所以在 AltItemGroup 中输入 00,然后回车

Alternative Item Data

AltItemGroup: **00**
 Priority:
 Strategy: **1** 
 Usage prob.:
☐ ☐

将会弹出以上画面

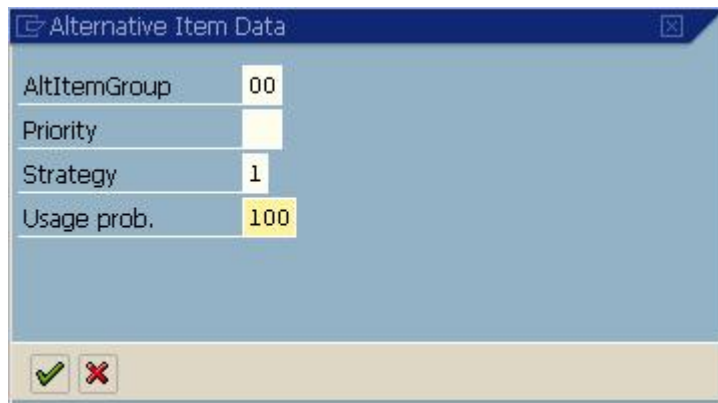
在此画面中的 Strategy 一个重要的设定,此 FIELD 中有两个设定

- 1 Manual maintenance/by usage probability
- 2 100% check

我们所讲的第一次情况就是选择这里的, 当 strategy 选择为 1(表示按 Usage Prob.来决定使用谁)的时候,Priority 则不起做用

而 Usage prob. 则表示使用的百分比,如我们例子: KT_RAW_00 为主料,KT_RAW_01 为辅料,即在正常情况下是用 KT_RAW_00,但是生产计划部门可以把此更改为 KT_RAW_01,

KT_RAW_00 设定如下:

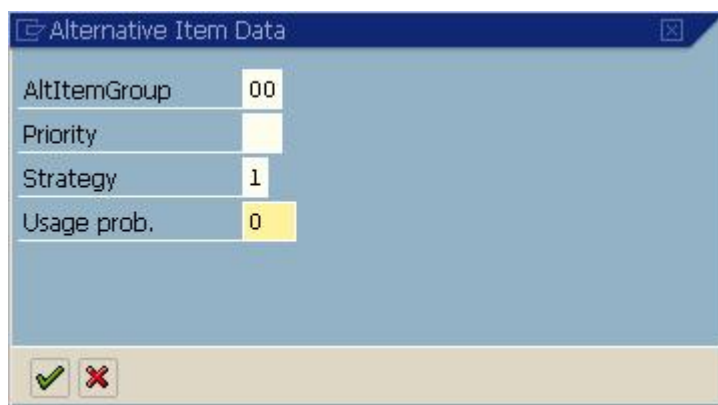


AltItemGroup	00
Priority	
Strategy	1
Usage prob.	100

Usage Prob. 表示使用 100%

KT_RAW_01 的设定

首先也需把 AltItemGroup 设定为 00 ,并且使用范围为 0%



AltItemGroup	00
Priority	
Strategy	1
Usage prob.	0

也许这样设定后,会有以下提示



! Enter usage probability	
✓	New entry ?

但不理会此提示,直接回车.然后 SAVE BOM

此时,如果你建立一张 production order 则会表现如下:

如此 Order Qty = 20 PC

Production Order Create: Component Overview

Order: %000000000001 Type: PP01
Material: KT_FG_00 Kanter - FG00 Plan: 1000

Filter: NO_FIL No filter Sort order: ST_STA Standard sort

Item	Component	Description	Reqmts qty	Un	I	Op	Seq	Plnt	Sto	Batch	Alternative	Bu	Ba	S	D
0010	KT_RAW_00	Kanter - Raw 00	20	PC	L	0010	0	1000	0001		☒	☐	☐		
0030	KT_RAW_01	Kanter - Raw 01	0	PC	L	0010	0	1000	0001		☒	☐	☐		
0040											☐	☐	☐		

你可以从中发现, KT_RAW_00 的使用量是 20PC (计算方法是此物料的使用量 20PC * 100%, 这个 100%就是来自于 BOM 中的 Usage Prob.)

而 KT_RAW_01 的使用量则为 0 PC(计算方法是此物料的使用量 20PC * 0%,这个 0%就是来自于 BOM 中的 Usage Prob.)

如果你想更改他们的 Usage Prob. ,则可进入此 ITEM 的 Detail

Production Order Create: General Data

Order: %000000000001 Type: PP01
Material: KT_FG_00 Kanter - FG00 Plan: 1000
Operation: 0010 Seq: 0

General data Purch. data VarSizeItmDta Co-product Text item Long txt

Component

Material: KT_RAW_00 Kanter - Raw 00
Item: 0010 ItemCat: L
StorageLocation: 0001 Status: CRTD
Batch: Item ID: 00000004
Plant: 1000
Goods recipient: Unloading Point:
Reservation: 20179 1 Movement Type: 261
Rev. level: Sort string:
D/C indic.: H Credit

Quantities

Requirement qty: 20 Unit of measure: PC ☐ Fixed Qty
Committed qty: 0 Operation scrap: 0.00 ☐ Net indic.
Withdrawal qty: 0 Component Scrap: 0.00 ☐ Final issue
Original qty: 20.000 Base Unit: PC Usage prob: 100

可以直接更改上图中的 usage prob,如假设为 70%, 另外把 KT_RAW_01 中的 USAGE PROB 改为 30%,如下图

Production Order Create: General Data

Order: %000000000001 Type: PP01
Material: KT_FG_00 Kanter - FG00 Plan: 1000
Operation: 0010 Seq: 0

General data Purch. data VarSizeItmDta Co-product Text item Long txt

Component

Material: **KT_RAW_01** Kanter - Raw 01
Item: 0030 ItemCat: L
StorageLocation: 0001 Status: CRTD
Batch: Item ID: 00000003
Plant: 1000
Goods recipient: Unloading Point:
Reservation: 20179 2 Movement Type: 261
Rev. level: Sort string:
D/C indic.: H Credit

Quantities

Requirement qty: Unit of measure: PC ☐ Fixed Qty
Committed qty: 0 Operation scrap: 0.00 ☐ Net indic.
Withdrawal qty: 0 Component Scrap: 0.00 ☐ Final issue
Original qty: 20.000 Base Unit: PC Usage prob: 30

再返回,则可看出

Production Order Create: Component Overview

Order: %000000000001 Type: PP01
Material: KT_FG_00 Kanter - FG00 Plan: 1000

Filter: NO_FIL No filter Sort order: ST_STA Standard sort

Component Overview

Item	Component	Description	Reqmts qty	Un...	I...	Op...	Seq	Plnt	Sto...	Batch	Alternative ...	Bl
0010	KT_RAW_00	Kanter - Raw 00	14	PC	L	0010	0	1000	0001		☒	
0030	KT_RAW_01	Kanter - Raw 01	6	PC	L	0010	0	1000	0001		☒	
0040											☐	

$14 = 20 * 70\%$

$6 = 20 * 30\%$

对于第二种,我想应该是最多很想实现,却又发现并不如意的一种,演示如下:

在第一种の設定画面中

需要使用 Strategy = 2 的策略,即表示是使用 Priority 的方式来处理

如各设定如下:

KT_RAW_00 设定

Alternative Item Data

AltItemGroup	00
Priority	1
Strategy	2 100% check
Usage prob.	100

✓ ✗

KT_RAW_01 的设定如下:

Alternative Item Data

AltItemGroup	00
Priority	2
Strategy	2 100% check
Usage prob.	

✓ ✗

此两图则表示: 正常情况下是使用 Priority = 1 的,如果他做 ATP 检查后,不够的话,则用 Priority =2 之物料,(当然,如果 Priority = 2 的物料也不够的话,则仍然会用 Priority = 1 的物料)

如 KT_RAW_00 的库存如下:

Stock Overview: Company Code/Plant/Storage Location/Batch

Material: KT_RAW_00 Kanter - Raw 00
Material type: ROH Raw material
Unit of measure: PC Base unit of measure: PC

Cl/CC/Plant/SLoc/Batch D	Unrestricted use	Qual. inspection	Reserved
Total	20.000	0.000	0.000
1000 IDES AG	20.000	0.000	0.000
1000 Werk Hamburg	20.000	0.000	0.000
0001 Materiallager	20.000	0.000	0.000

KT_RAW_00 在仓位 0001 中有 20PC

Production Order Create: Component Overview

Material

Capacity

Components

Order

%000000000001

Type

PP01

Material

KT_FG_00

Kanter - FG00

Plan

1000

Filter

NO_FIL No filter

Sort order

ST_STA Standard sort

Component Overview

Item	Component	Description	Reqmts qty	Un...	I...	Op...	Seq	Plnt	Sto...	Batch
0010	KT_RAW_00	Kanter - Raw 00	51	PC	L	0010	0	1000	0001	
0030	KT_RAW_01	Kanter - Raw 01	0	PC	L	0010	0	1000	0001	

结果看似一样,但实际上经过了以下二个步骤

1. 检查KT_RAW_00的元素(ATP 设定)是否可以满足,发现不能,则去寻找 PRIORITY=2 的物料
2. 用 KT_RAW_01 的元素(ATP 设定)去检查是否可以满足,发现不能,则只能把需求还原到 PRIORITY=1 的物料即 KT_RAW_00

对于第三种,略带点技术性,其一般不叫替代(Alternative),而叫取代(Discontinues)

对此的设定不在 BOM 中做任何设定,而是在 MRP VIEW 中设定相应的资料

Change material BOM: General Item Overview



Sub-items

New entries



Header

Effectivity

Material

KT_FG_00

Kanter - FG00

Plant

1000

Werk Hamburg

Alternative BOM

1

Material

Document

General

Item	ICt	Component	Component description	Quantity	Un	Asm	SIs	Valid From	Valid
0010	L	KT_RAW_00	Kanter - Raw 00	1	PC	☐	☐	2007/11/30	9999

BOM 只有 KT_RAW_00 物料,而不需要 KT_RAW_01 物料

Change Material KT_RAW_00 (Raw material)

Additional data Organizational levels Check screen data

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

Material: **KT_RAW_00** Kanter - Raw 00

Plant: **1000** Werk Hamburg

Stor. Loc.: **0001** Materiallager

BOM explosion/dependent requirements

Selection method: ☐ Component scrap (%): ☐

Individual/coll.: ☐ Requirements group: ☐

☐ Version Indicator ☐ ProdVersions MRP dep.requirements: ☐

Discontinued parts

Discontin. ind.: **1** Eff.-out: **2007/11/02** Follow-up matl: **KT_RAW_01**

以上设定,在 2007 年 11 月 2 号后, 如果 KT_RAW_00 库存不够的话,则用 KT_RAW_01

Stock Overview: Company Code/Plant/Storage Location/Batch

Material: **KT_RAW_00** Kanter - Raw 00

Material type: **ROH** Raw material

Unit of measure: **PC** Base unit of measure: **PC**

Cl/CC/Plant/SLoc/Batch D	Unrestricted use	Qual. inspection	Reserved
Total	20.000	0.000	0.000
1000 IDES AG	20.000	0.000	0.000
1000 Werk Hamburg	20.000	0.000	0.000
0001 Materiallager	20.000	0.000	0.000

Stock Overview: Company Code/Plant/Storage Location/Batch			
Material	KT_RAW_01	Kanter - Raw 01	
Material type	ROH	Raw material	
Unit of measure	PC	Base unit of measurePC	
Cl/CC/Plant/SLoc/Batch D	Unrestricted use	Qual. inspection	Reserved
Total	40.000	0.000	0.000
1000 IDES AG	40.000	0.000	0.000
1000 Werk Hamburg	40.000	0.000	0.000
0001 Materiallager	40.000	0.000	0.000

库存如上.

KT_RAW_00 库存为 20PC

KT_RAW_01 库存为 40PC

如果此时建立 production order

Production Order Create: Component Overview

Material

Capacity

Components

Order

%000000000001

Type

PP01

Material

KT_FG_00

Kanter - FG00

Plan

1000

Filter

NO_FIL No filter

Sort order

ST_STA Standard sort

Component Overview

Item	Component	Description	Reqmts qty	Un_	I_	Op_	Seq	Plnt	Sto_	Batch	A_	Bu_	Ba_	S_	D_	Co_	Ph_	D_
0010	KT_RAW_00	Kanter - Raw 00	20	PC	L	0010	0	1000	0001									1
0010	KT_RAW_01	Kanter - Raw 01	0	PC	L	0010	0	1000	0001									1

如 Order Qty = 20 PC

虽然在 BOM 中只有 KT_RAW_00,但是在 Production order components 中却发现 KT_RAW_01,这是 SAP 告诉你,KT_RAW_00 将会被 KT_RAW_01 取代,请看上图中红色的字眼.

如果把 ORDER QTY = 21 PC

Production Order Create: Component Overview

Material

Capacity

Components

Order

%000000000001

Type

PP01

Material

KT_FG_00

Kanter - FG00

Plan

1000

Filter

NO_FIL No filter

Sort order

ST_STA Standard sort

Component Overview

Item	Component	Description	Reqmts qty	Un...	I...	Op...	Seq	Plnt	Sto...	Batch
0010	KT_RAW_00	Kanter - Raw 00	21	PC	L	0010	0	1000	0001	
0010	KT_RAW_01	Kanter - Raw 01	0	PC	L	0010	0	1000	0001	
0020										

当你刚建立的时候,KT_RAW_00 仍然是 21PC,但是,如果你做一下 ATP,则会发现

Production Order Create: Component Overview

Material

Capacity

Components

Order

%000000000001

Type

PP01

Material

KT_FG_00

Kanter - FG00

Plan

1000

Filter

NO_FIL No filter

Sort order

ST_STA Standard sort

Component Overview

Item	Component	Description	Reqmts qty	Un...	I...	Op...	Seq	Plnt	Sto...	Batch
0010	KT_RAW_00	Kanter - Raw 00	20	PC	L	0010	0	1000	0001	
0010	KT_RAW_01	Kanter - Raw 01	1	PC	L	0010	0	1000	0001	
0020										

SAP 会自动地把 KT_RAW_00 变为 20PC（因为他的库存只有 20PC），而剩下的 1PC，则会自动给 KT_RAW_01

而对于 discontinues，还有一种情况，即某些物料本身就是配套的，如 L98 与 R98 这两个物料是对称的，如果你想当 L98 不用的时候，用 L99 取代，那把 R98 也会被 R99 取代。

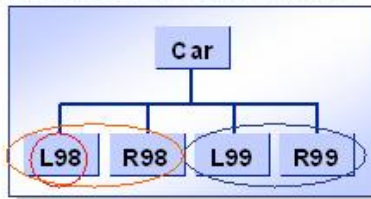
请看以下设定：

目的：用 L99 + R99 去取代 L98 + R98

Discontinued Parts (Parallel Discontinuation)

SAP

BOM in discontinuation phase

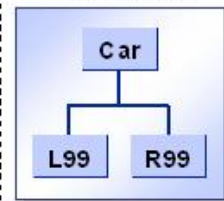


- L98 (left wing mirror model year 1998): **main item for discontinuation**

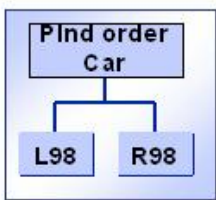
- L98/R98: **Discontinuation group 01**

- L99/R99: **Follow-up group**

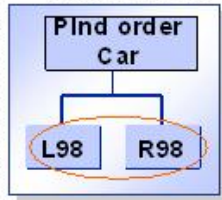
New BOM



Initial situation



Available stock L98 > 0



Available stock L98 = 0



1.1.2001

Time

Effective-out date
01.01.2001

Change BOM

Display Material L98 (Raw material)

Additional data Organizational levels

MRP 3 MRP 4 Accounting 1 Accounting 2 Costing 1 Costing...

Material L98 L98

Plant 1000 Werk Hamburg

BOM explosion/dependent requirements

Selection method ☐ Component scrap (%) 0.00

Individual/coll. ☐ Requirements group ☐

☐ Version Indicator MRP dep.requirements ☐

Discontinued parts

Discontin. ind. 1 Eff.-out 2006-06-07 Follow-up matl L99

设定 L99 将取代 L98

Display Material R98 (Raw material)

Additional data Organizational levels

MRP 3 MRP 4 Accounting 1 Accounting 2 Costing 1 Costing...

Material: R98 R98 

Plant: 1000 Werk Hamburg 

BOM explosion/dependent requirements

Selection method ☐ Component scrap (%) 0.00

Individual/coll. ☐ Requirements group ☐

☐ Version Indicator  MRP dep.requirements ☐

Discontinued parts

Discontin. ind. 3 Eff.-out Follow-up matl

设定 R98 为 PARALLEL 取代

Display Material L99 (Raw material)

Additional data Organizational levels

MRP 3 MRP 4 Accounting 1 Accounting 2 Costing 1 Costing...

Material: L99 L99 

Plant: 1000 Werk Hamburg 

BOM explosion/dependent requirements

Selection method ☐ Component scrap (%) 0.00

Individual/coll. ☐ Requirements group ☐

☐ Version Indicator  MRP dep.requirements ☐

Discontinued parts

Discontin. ind. ☐ Eff.-out Follow-up matl

Display Material R99 (Raw material)

Additional data Organizational levels

MRP 3 MRP 4 Accounting 1 Accounting 2 Costing 1 Costing...

Material R99 R99

Plant 1000 Werk Hamburg

BOM explosion/dependent requirements

Selection method ☐ Component scrap (%) 0.00

Individual/coll. ☐ Requirements group ☐

☐ Version Indicator MRP dep.requirements ☐

Discontinued parts

Discontin. ind. 3 Eff.-out Follow-up matl

Change material BOM: General Item Overview

New entries Header

Material KSF2 SFG2

Plant 1000 Werk Hamburg

Alternative BOM 1

Material Document General

Item	ICt	Component	Component description	Quantity	Un	Asm	IS	Valid From	Valid to	Ch
0010	L	L98	L98	1	PC	☐	☐	2006-06-03	9999-12-31	
0020	L	R98	R98	1	PC	☐	☐	2006-06-03	9999-12-31	
0030	L	L99	L99	1	PC	☐	☐	2006-06-07	9999-12-31	
0040	L	R99	R99	1	PC	☐	☐	2006-06-07	9999-12-31	

Discontinuation Data

Item Number 0010

Component L98

Item category L

Discontinuation ind. 1

Discont. group b1

Follow-up group

Back Discont. info

Discontinuation Data	
Item Number	0020
Component	R98
Item category	L
Discontinuation ind.	3
Discont. group	1
Follow-up group	
Back X Print Save Discont. info	

上两图可以看出 R98 与 L98 是一对的，只是根据 L98 去判断库存是否足够。如果不够再用 L99 去替代。

Discontinuation Data	
Item Number	0030
Component	L99
Item category	L
Discontinuation ind.	
Discont. group	1
Follow-up group	01
Back X Print Save Discont. info	

Discontinuation Data	
Item Number	0040
Component	R99
Item category	L
Discontinuation ind.	3
Discont. group	1
Follow-up group	01
Back X Print Save Discont. info	

If L98 Stock =0

Processing Components: Component Overview



Material	KSF2	SFG2		
Product. plant	1000	Order start	2006-07-03	
Order quantity	100	PC	Order finish	2006-07-03

Component Overview

	Material	Description	Requirement qty	Un..	Q	Plant	Pro..	Sup..	Reqmts date	Item	I	Discontin.type	Follow-Up Item	Requ..	Ba..	M	I
	L98	L98	0	PC		1000			2006-07-03	0010	L 2			0	PC	PD	
	R98	R98	0	PC		1000			2006-07-03	0020	L 3			0	PC	PD	
	L99	L99	100	PC		1000			2006-07-03	0030	L	X		100	PC	PD	
	R99	R99	100	PC		1000			2006-07-03	0040	L	X		100	PC	PD	

If L98 stock =80

Processing Components: Component Overview