



SISTEMA DE GESTÃO DA QUALIDADE



SASSMAQ

CL Nº 3639/2013
CE.OCT.5037/2013

CERTIFICADO PELA DQS DE ACORDO
COM A NORMA ISO 9001:2008
REGISTRO Nº 068478

LOGISTIC MANAGEMENT LOGISTIC SYSTEM UTILIZING BAR CODE AND RADIO FREQUENCY COMMUNICATION



Main Screen – SME Customer version



CONCEPTS

UC -Consume Units – To improve APK customer service efficiency, APK applies in its Logistic Management System a different concept to prepare the products in the right quantity to the assemble line.

Software

Technical decision

1. Connectivity through Open Data Base Connectivity - ODBC
1. Compatible with any ODBC
2. Active Data Object Technology – ADO

Kit's elaboration

The systems permits kit's assemble according to the customers real needs and so allows:

1. Waste reduction
2. Cost reduction
3. The control of quantities and varieties to any group of work
4. Increases the user level of responsibility and efficiency.

Products supply in the exact point of use on the assemble line:

1. Trusty operation
2. Secure operation

Customer Id.

The screenshot shows a login window for the APK system. At the top, the APK logo is displayed with the text 'LOGISTICA E TRANSPORTE' below it. The main heading is 'Cliente SME'. There are two input fields: 'LOGON:' with a masked field 'xxxx' and 'SENHA:'. At the bottom left, it says 'Versão: 1.3.4'. At the bottom right, there are 'Cancelar' and 'OK' buttons.

The screen above shows the user Id. (identification). Through this procedure the system allows or not access to different levels of the software.

This screen also shows the software version making the easier inspection to the technicians.

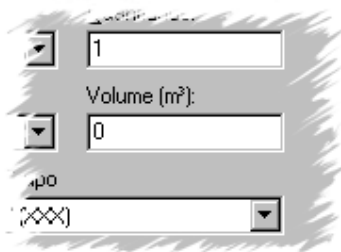
Another interesting characteristic is the cryptography that protects the user password. It was developed by APK and has no public domain which is a guarantee to any of our customers.

Registers

1. Products

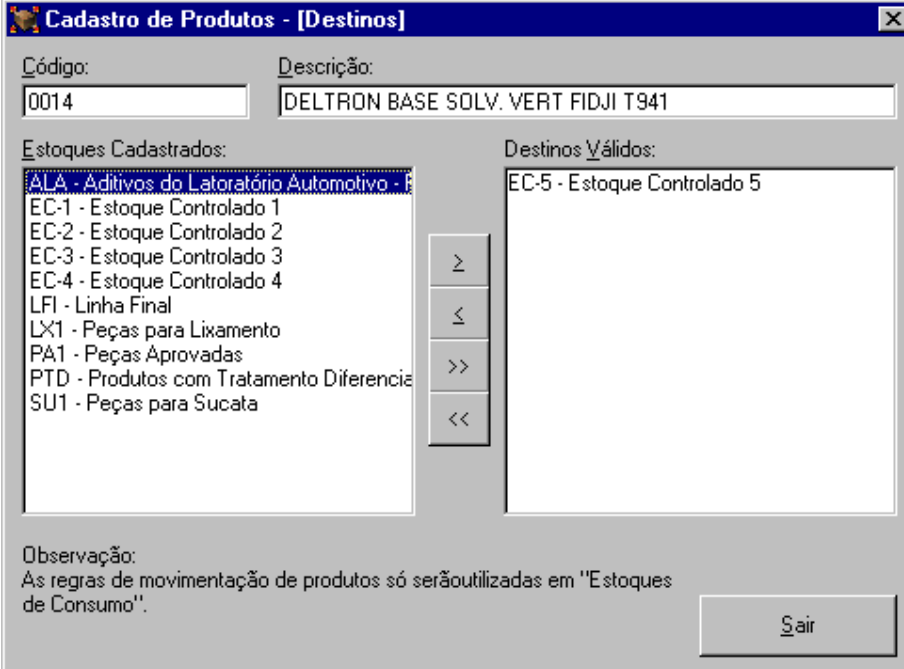
The product registration is fundamental to the system. Through this procedure the user inputs the characteristic that will act over all process related to the system. Like cubic meters needed per product, kanban (minimum stock), valid stock address, etc.

- a) Product cubic meter needs – Product data informs how many cubic meters each UC needs. This helps to calculate how much space is need to project the stock capacity.



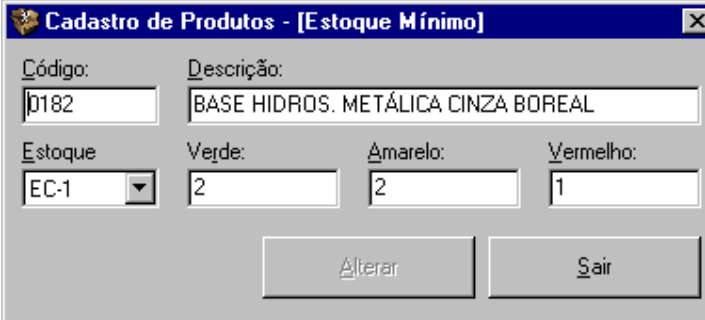
Part of a screen showing the Product Registration.

- b) Valid address – supplies the system with the valid address to avoid product mixing.



Screen showing the valid address configuration.

- c) Kanban Configuration– Supplies the data to the individual control of stock re-supply.

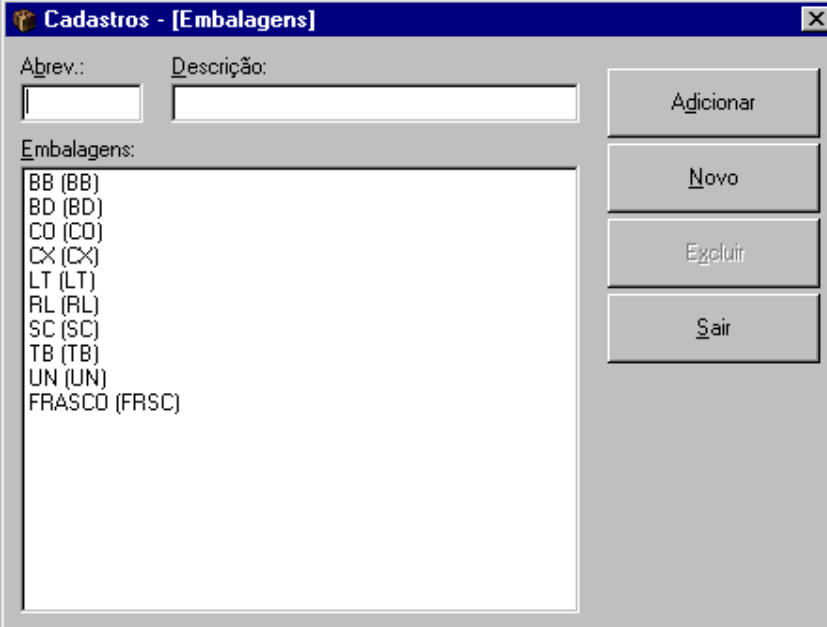


Kanban Configuration Screen.

2. Packing

Register

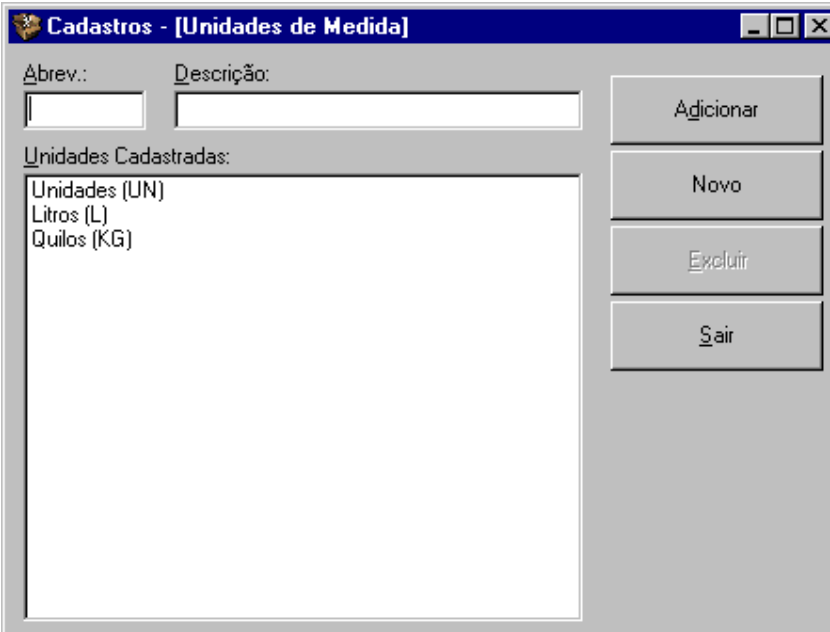
Ex: CO – container, CX – box



3. MEASURE UNITS

Register of control units

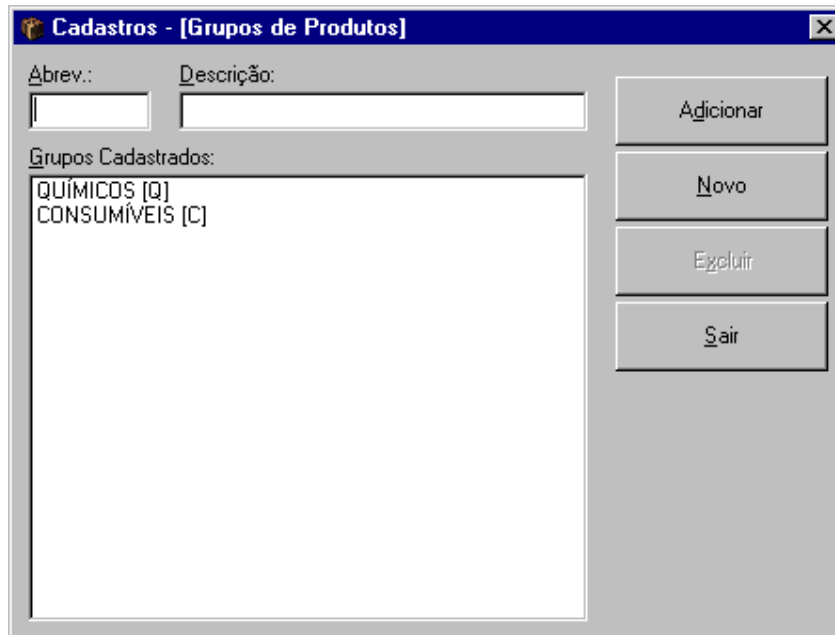
Ex: KG – kilogram – LT – liter



4. PRODUCT GROUPS

Register of all types of products under control

Ex: Q – chemical C- consumable



Cadastros - [Grupos de Produtos]

Abrev.: Descrição:

Adicionar

Grupos Cadastrados:

- QUÍMICOS [Q]
- CONSUMÍVEIS [C]

Novo

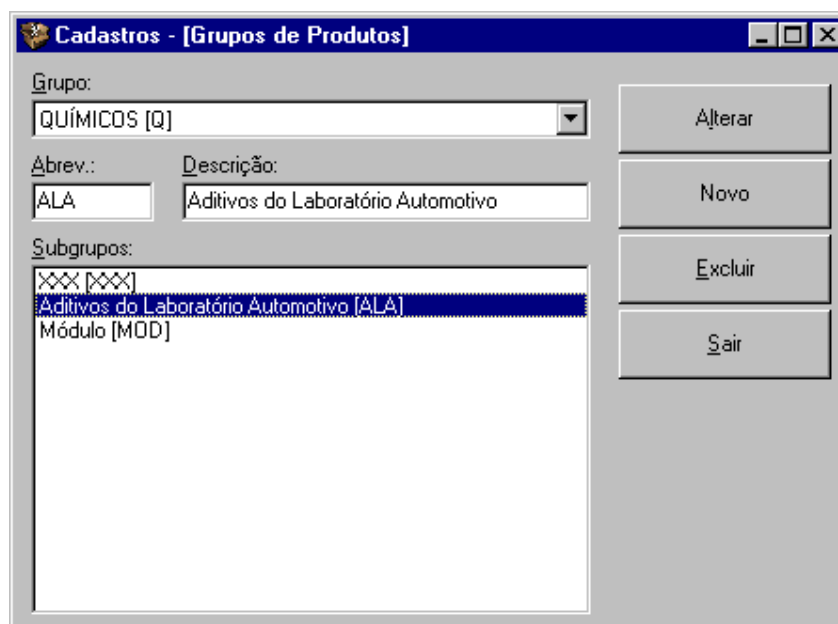
Excluir

Sair

5. PRODUCT SUBGROUPS

Register of all subtypes of products under control

Ex: TTS – surface treatment



Cadastros - [Grupos de Produtos]

Grupo:

Alterar

Abrev.: Descrição:

Novo

Subgrupos:

- Aditivos do Laboratório Automotivo [ALA]
- Módulo [MOD]

Excluir

Sair

6. PRODUCT STATUS

Provides the registration of several different status, allowing the control of products with the “non-conformity” tag.

7. STOCK ADDRESS

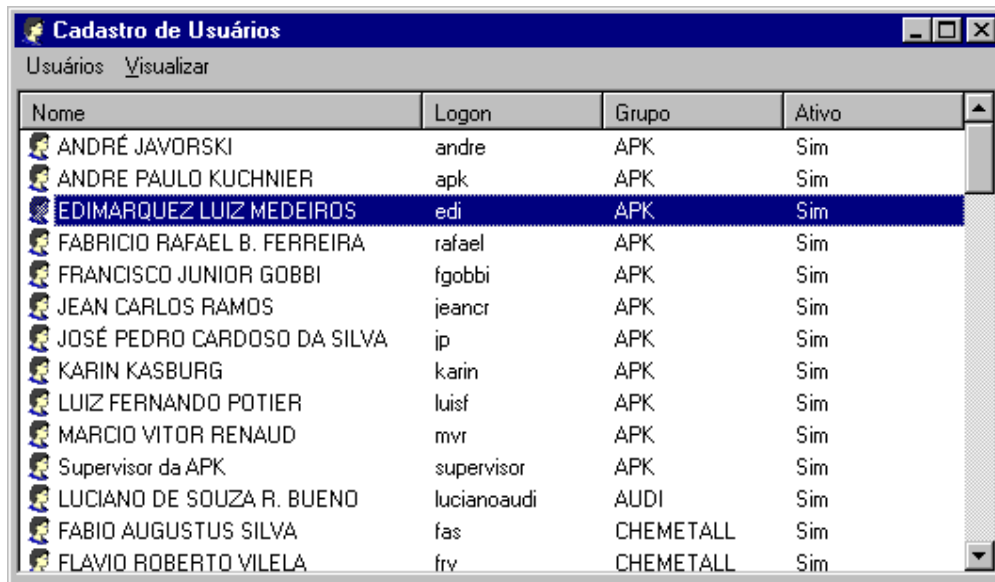
Allows the registration of many different warehouses

8. POSITION

Registration of the valid positions in the stock. It uses Cartesian coordinates

9. USERS

User registration and access control.



Nome	Logon	Grupo	Ativo
ANDRÉ JAVORSKI	andre	APK	Sim
ANDRE PAULO KUCHNIER	apk	APK	Sim
EDIMARQUEZ LUIZ MEDEIROS	edi	APK	Sim
FABRICIO RAFAEL B. FERREIRA	rafael	APK	Sim
FRANCISCO JUNIOR GOBBI	fgobbi	APK	Sim
JEAN CARLOS RAMOS	jeancr	APK	Sim
JOSÉ PEDRO CARDOSO DA SILVA	jp	APK	Sim
KARIN KASBURG	karin	APK	Sim
LUIZ FERNANDO POTIER	luisf	APK	Sim
MARCIO VITOR RENAUD	mvr	APK	Sim
Supervisor da APK	supervisor	APK	Sim
LUCIANO DE SOUZA R. BUENO	lucianoaudi	AUDI	Sim
FABIO AUGUSTUS SILVA	fas	CHEMETALL	Sim
FLAVIO ROBERTO VILELA	frv	CHEMETALL	Sim

User Register Main Screen

PROCESSES – BAR CODE READER (DATA COLECTOR)

1. Separation

The separation process, although not controlled by the system, is **vital** to the **logistic process**, it is when the operators divide and pack the receiving products in UC (Consume Units).



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2. Inputting the Products

After the process above described, the UC's are ready to receive the Id. bar code tag and be stocked.

Unidades de Consumo - [Entrada]

Entrada de UCs

Leve esta UC para o estoque EC-5 e coloque-a na posição B61

Produtos por UC: **1**

Produto: Descrição:

PPG:

Entrada: Destino:

Responsável Técnico: Posição:

Status de inicial da UC: Qtd. de UC: Validade:

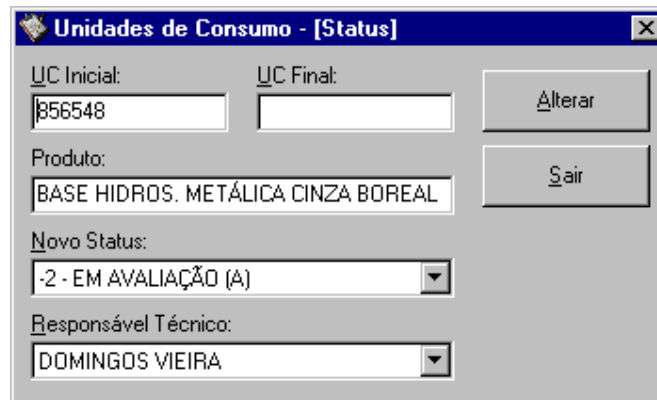
Lote: Nota Fiscal: Volume (m³):

Embalagem: Unidade de Medida: Qtd. por UC:

Imprimir Etiqueta de Entrada. Imprimir Etiqueta de Movimentação.

3. Status Changing

The status changing process generally happens when is necessary to avoid the consumption of one UC. This normally means that an analysis by a chemical technician is needed. The procedure to liberate an UC that has been block is the same.



UTILITIES

1. Tag Generator

The tag generator is one of the most used. All tags are printed by this part of the system.





Etiquetas

APK 99/99/9999 99:99:99 **PPG**
ANDRE L. S. JAVORSKI

VALIDADE: 99/99/9999 LOTE: XXXXXXXXXX **C**

Papel Fasson
APK: 000000299
AVE: RCHB-000001.22

Est/Pos: **EC-3 CO123**
Status: **APROVADO**
Responsável: Cassiano de Oliveira
Grupo: Avery
99/99/9999 00:00:00

NF: XXXXXX EMB: TB

99999999

UC tag

Is the first bar code tag the product receives. Is used to mark and identify the product when it gets at the stock.

APK 99/99/9999 99:99:99 **PPG**
ANDRE L. S. JAVORSKI

APROVADO

RESPONSÁVEL TÉCNICO:
NOME: **JOSÉ PEDRO**
SETOR: **QUALIDADE**
99/99/9999 99:99:9999

EC-2

99999999

Turn over tag

This tag is used to move the product from the receiving area to the controlled stock area. Indicates the product actual status. There one can read the product location, its sequential number and validity status.

APK 99/99/9999 99:99:99 **PPG**
ANDRE L. S. JAVORSKI

EM ANÁLISE

RESPONSÁVEL TÉCNICO:
NOME: **JOSÉ PEDRO**
SETOR: **QUALIDADE**
99/99/9999 99:99:9999

EC-2

99999999

UNDER ANALYSIS tag

This tag indicates the products which presents some problems, are under technical analysis or waiting for some decision. There one can read the word *Under Analysis*, the technician name, hour, date of the beginning of this process.

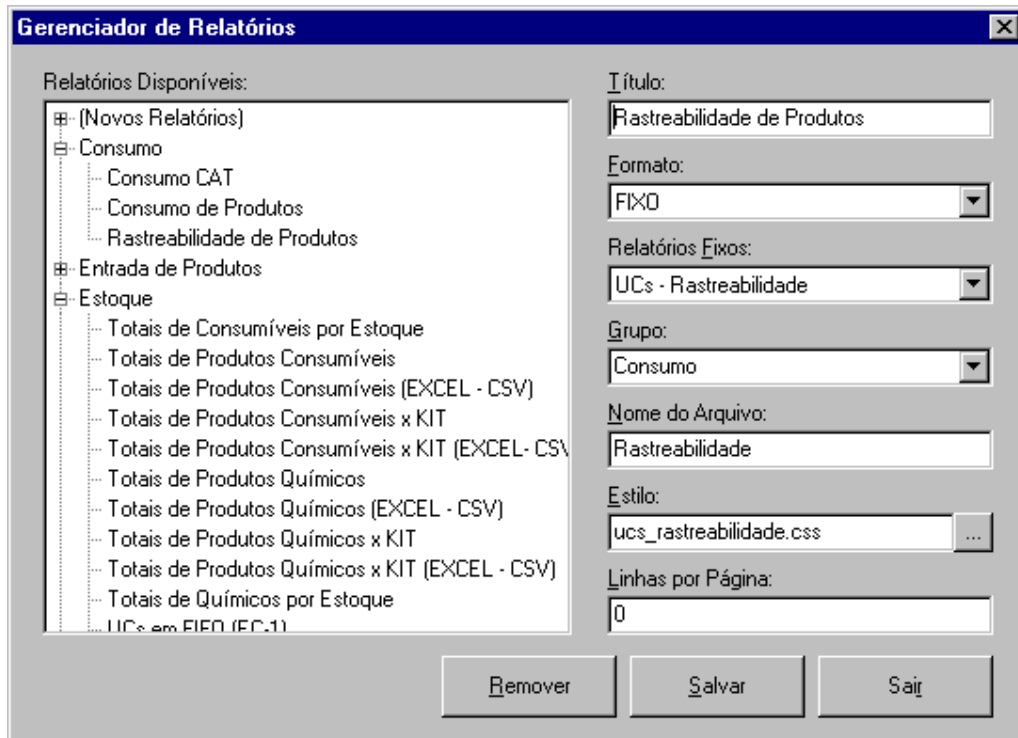


SEGREGATED Tag

Indicates the products that have not being approved in the lab test. There one can read the word *Segregated*, the technician name, hour and date of segregation.

2. Report Manager

The report manager has been developed to provide the user with a tool to personalize the form and appearance of its reports, besides making easier the addition of new reports.



PROCESSES - Bar Code Reader

LOGON

Using a Bar Code Reader (Data Collector), the operator reads the ID. Card

TERMINAL SME
 USUÁRIO:
 [REDACTED]
 ACESSO NEGADO!

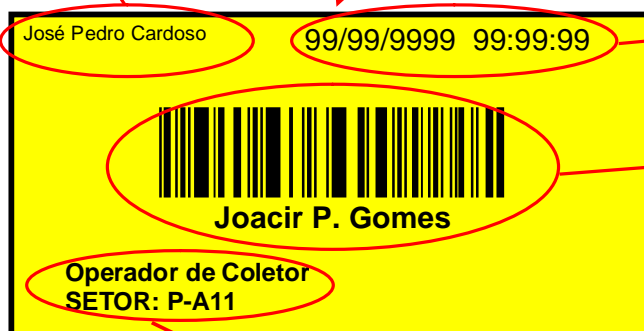
- Bar Code Reader access screen. Security and Trusty



All the process that need validation or access permission are executed through bar codes. This technology eliminates typing mistakes and limits the access to not authorized persons.

The user prints the tag

User Id. Tag



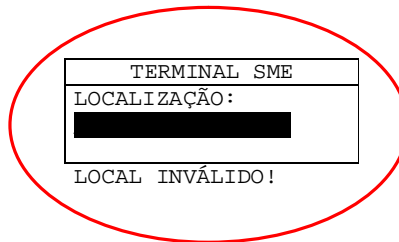
Hour and date of printing

User name and Id as well as bar code to access the system

Name and area of the user

LOCATION

Reading the tag, indicates where user is working.



Opening screen to have access to the stock



To every stock position there is a bar code. Only after reading this bar code one can have access to the stock information.



Access tag to the controlled stock



MENU

After reading the tag one sees a menu with the following options:

1. Posicionar Produto	Inputs the products in the proper place (valid stock)
2. Informações do Produto	Address the products to a valid shelf position
3. Verificar FIFO	Informs the user whether the product is the oldest or not
4. Receber Produto	Receive the product where it is liberated
5. Consumos	Consume the product
6. Inventário Geral	Produces a general inventory
7. Inventário por Posição	Produces a inventory per position

To Position the Product:

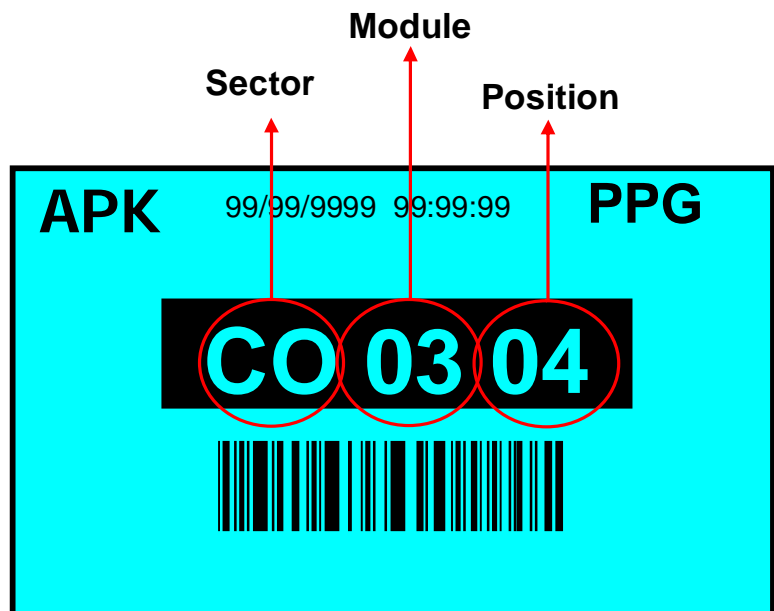
This option shall be used only when changing the product position.

1. Choose the option “Positioning Product”

Read the product bar code, read the position bar code and stock the product on the new address.

Id. Position Tag

Position tag; using coordinates to facilitate the stocking.



Position Id. tag



Reading the position bar code eliminates all mistakes. The system only allows the input after reading the tag and so registering the precise position of the product.

Product Information

To know more about the product in stock, the user has the option *Informação do Produto (Product Information)*.

Process:

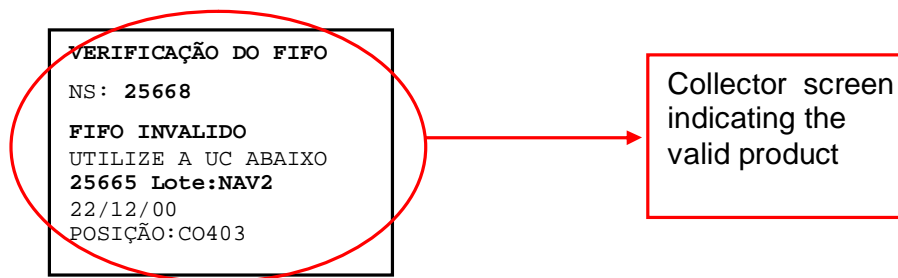
1. Choose the option 2- *Informação do Produto (Product Information)* and
2. Read the desired product.

The user shall have access to the following information: the UC, product description, batch, validity date, the stock where the product is stocked, the stock position and status.

Verifying FIFO

The option *Verificar Fifo* (*Verify FIFO*) is used to know if the product is available to be consumed according to the FIFO criteria.

1. If the product is oldest the system informs “Chosen UC ok” .
2. But if there is an older product than this one, the system informs which is the UC of this product, the batch, its validity and position.



Receiving the Product

After its tagging at the receiving area and its distribution to the controlled stocks, one finally inputs the products. And it must be done as follow:

1. **Choose the option *Receive Product* and**
Read the product tag, after this procedure the bar code reader asks the user to read the position tag.
2. **Stock the product on the shelf.**
Read the desired position tag and stock the product.
When the process is over the system transmits to the bar code reader the following message “No UC missing” indicating that all product to that stock have been receive.

Consume the Product (To be picked from the stock)

The option *Consume Product* shall be used when consuming the product.

1. Consumer Id

The system allows the consumption only after reading the user Id. card and the user will have access to this procedure.

Process

1. When the word *consumer* appears on the screen one must read the bar code tag
2. After this the user reads the product tag

Important

The system does not allow the user to consume products which are not the oldest according to FIFO classification or those not marked with the “approved” status. In any of these cases the system indicates the proper product to be consumed.

This procedures avoids picking of wrong products.

2. User Id. card

The system allows the consumption of the products after reading the Id. card and this Id. must provide access to this area

Breaking FIFO

Sometimes the consumption needs may not follow the FIFO rules, normally due external situations. To deal with it the system has a area called *QUEBRA DO FIFO* (Breaking FIFO) which can only be accessed by a technician responsible by the products.



To Fractionate the Product

Besides the option *Consumir o Produto* (Consume the Product) the system allows to fractionate the product and so permits a rigorous follow up of it.

Process

1. the user registered in the system logs on.
2. chooses the option "fractionate the product" on the main menu
3. either reads or informs the product bar code
4. the system immediately informs the product quantity (liter or kilogram)
5. the user informs the quantity needed
6. the system then informs the total % used up.

The system provides the user with all necessary information even warning when the validity date is over.

Controlling and Dealing with "Non conformity" products.

The system has a rigorous control over the "non conformity" product, besides its visual identification where one reads easily information like the responsible technician and actual status, all operations are keep locked.

Inventory per Position

Inventory per Position

Is used to control the stock per position, the user starts reading the product bar code tag and it kicks off the whole procedure.

Process

1. choose the option – *Inventário por Posição* (Inventory per Position) and
2. Start reading the UC's bar code.

The system shall provide the user with all information like how many UC are in the shelf, how many have been read and how many of them it has still to read.

General Inventory

Is used to inventory all products in the stock. The user starts reading the desired bar code and the whole process is kicked off.

Process

3. choose the option – *Inventário Geral* (General Inventory) and
4. Start reading the UC's bar code.

The system shall provide the user with all information like how many UC are in the shelf, how many have been read and how many of them it has still to read.

Bar Code Reader

This is Reader approved to this solution.

It has a anatomic design, is easy to program, and very practical regarding data transfer.





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REGISTRO Nº 068478**SASSMAQ**CL Nº 3639/2013
CE.OCT.5037/2013

Electronic Kanban Report

Página: 1

25/10/00 11:51:12

Estoque Controlado 2: | 1 | 2 | 3 |

Product	Description	Actual	Nominal	Feed	Buy	KANBAN
2	GARDOCLEAN TA 6333 TM	0	1	1	1	Vermelho
3	ADITIVO 1	10	15	5	0	Verde
4	ADITIVO 2	1	14	13	14	Vermelho
5	ACELERADOR 134	3	3	0	0	Verde
7	GARDOBOND 24 TA	1	1	0	0	Verde
8	NEUTRALIZANTE ML	13	0	0	0	Excesso
9	GARDOBOND 24 TE	3	4	1	4	Amarelo
30	RESINA W 752	4	9	5	9	Amarelo
31	ADITIVO PARA CORREÇÃO DE PH	8	8	0	0	Verde
32	ADITIVO SOLVENTE 1	2	2	0	0	Verde

Relatório gerado por ANDRE PAULO KUCHNIER



Fractionated Product Report

Operador: ANDRE PAULO KUCHNIER

25/10/00 16:07:15

27 - DELTRON D 868 THINNER P/ RETOQUE DG					
UC	Validade	QTD. Atual	QTD. Consumida		QTD. Total
16045	01/04/02	0,5	0,5	1	
16045	01/04/02	0,4	0,1	1	

APK Logística e Transporte LTDA.

Supply Tracing Capacity

Período: 01/09/2000 00:00 à 15/09/2000 24:00.

25/10/00 16:24:38

P-A11

Product	Description	PPG	RDBA	FOR	Total
0066	LIXA 127MM DIAM P600 S/F - 66632	LX-003	R100023697		400
0067	LIXA 127MM DIAM P600 C/F - 62319	LX-006	R586465804		200
0126	LUVA POLIAMIDA 6 FIOS	LV-005			75
0127	LUVA NITRÍLICA (GRANDE)	LV-001	X953153402	PISEBEM	1
0128	RESPIRADOR P/ MÁSCARA REF 8713 - B	RE-012			16
0555	SAPATO SEG. N.40	EP-007			1
0588	PANO RESINADO (S24DX)			TILLIMPA	1600

P-A12

Product	Description	PPG	RDBA	FOR	Total
0066	LIXA 127MM DIAM P600 S/F - 66632	LX-003	R100023697		1000
0067	LIXA 127MM DIAM P600 C/F - 62319	LX-006	R586465804		800
0072	FITA CREPE ALTA TEMPERATURA 2396 50MMX50M - 64484	FT-007	R100092417		6
0080	SUPORTE DISCO 127MM DIAM 6.35MM ESP PN77752-66266	SU-008	P399191001		3
0126	LUVA POLIAMIDA 6 FIOS	LV-005			225
0587	PANO BRANCO VIRGEM (S44DY)			TILLIMPA	50
0588	PANO RESINADO (S24DX)			TILLIMPA	1800

APK Logística e Transporte LTDA.



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SASSMAQ
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Quality Tracing Capacity (From 30 Days)

Usuário: ANDRE PAULO KUCHNIER

25/10/00 16:32:08

Product	Description	UC	Validity	Batch	Position	stock
45	BASE HIDROS. PEROLIZADO VERMELHO CERISE	67968	15/11/00	W06051	ST13	EC-1
45	BASE HIDROS. PEROLIZADO VERMELHO CERISE	67965	15/11/00	W06051	ST42	EC-1
173	BASE HIDROS PEROLIZADO VERDE EPICEIA	64485	22/11/00	W05507	ST12	EC-1
173	BASE HIDROS PEROLIZADO VERDE EPICEIA	64469	22/11/00	W05507	ST12	EC-1
173	BASE HIDROS PEROLIZADO VERDE EPICEIA	64484	22/11/00	W05507	ST32	EC-1
173	BASE HIDROS PEROLIZADO VERDE EPICEIA	64468	22/11/00	W05507	ST63	EC-1
33	ADITIVO COALESCENTE	72495	18/11/00	B04748	TCA31	EC-2
30	RESINA W 752	62613	27/10/00	B04905	AETQ	EC-5
30	RESINA W 752	62630	09/11/00	B05063	AETQ	EC-5
42	BASE HIDROS. METÁLICA CINZA NYMPHEA	66782	11/11/00	W02783	AETQ	EC-5
42	BASE HIDROS. METÁLICA CINZA NYMPHEA	66783	11/11/00	W02783	AETQ	EC-5
42	BASE HIDROS. METÁLICA CINZA NYMPHEA	66784	11/11/00	W02783	AETQ	EC-5
42	BASE HIDROS. METÁLICA CINZA NYMPHEA	66781	11/11/00	W02783	AETQ	EC-5

APK Logística e Transporte LTDA.

Process Tracing Capacity

Período: 01/09/2000 00:00 à 15/09/2000 24:00.

25/10/00 16:45:29

0039 - BASE HIDROS. METÁLICA VERDE FIDJI

UC	Batch	Validity	Pack	Out	Operator
55668	W05568	23/09/00	TB	04/09/00 10:54:01	FRANCISCO J. GOBBI
66774	W05568	23/09/00	TB	06/09/00 16:17:28	ANDRÉ JAVORSKI

0040 - BASE HIDROS. METÁLICA CINZA FJORD

UC	Batch	Validity	Pack.	Out	Operator
54235	W04864	08/09/00	TB	04/09/00 10:04:29	FRANCISCO J. GOBBI
54237	W04864	08/09/00	TB	04/09/00 22:35:33	ANDRÉ JAVORSKI



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Costs Control

25/10/00 17:10:13

Consumption per Department

Modelo: CLIO / CLIO SEDAM					Tipo: CAPÔ DIANTEIRO		
Parts	Previous Cod.	Date	Hour	Activity	Local	Operator	Responsible
A000232	A000232	09/05/2000	08:44:48	CONSUMO MONTAGEM	PA1	OSVALDO CALDEIRA	ALTAIR NOEL
A000383	A000383	09/05/2000	08:49:26	CONSUMO MONTAGEM	PA1	OSVALDO CALDEIRA	LUIS E. CORDEIRO
A000428	A000428	15/05/2000	15:04:59	CONSUMO MONTAGEM	PA1	OSVALDO CALDEIRA	LUCIANO AUGUSTO WOOD

TECNOLOGICAL INFRA-ESTRUCTURE



Ethernet Access Point XR 500mW
Radio frequency communication
applied.



Special High Speed Printer to issue
bar code tags.



Bar Code Reader,
connected to a PC.



EAQF Congratulation letter

-----Mensagem original-----

De: Joao C ALBERTI <Joao.C.Alberti@renault.com>

Para: Carla VARGAS-PPG <Carla.Vargas-Ppg@renault.com>; Rui COELHO-PPG

<Rui.Coelho-Ppg@renault.com>; afernandes <afernandes@ppg.com>;
penha

<penha@ppg.com>; apk <apk@apk.com.br>

To: APK Logística e Transporte Ltda.

I was very happy when I received the information that the EAQF Audit performed during week 34 / 99 ranked PPG in the Supplier Category with a "A" and 90% of points. I consider this result a natural consequence of the great effort that PPG has invested in the last months, searching for this goal. My congratulation to all of you nominally mentioned here as well as to all PPG and APK employees that either inside or outside the FAS site helped through its own activities to make this goal a reality - the objective everybody was motivated to accomplish.

I wish that this reward will also propel the courage to face the new steps that will follow and will work to crystallize the partnership between PPG and Renault do Brazil, making it more efficient and transparent, so that in a medium term our partnership may be seen as a reference to everybody inside the Renault Group.

In the name of the Painting Dept, congratulations..

J. C. Alberti



Extra Information

The system is design to supply the company with all necessary data and reports to support the stock management and line feed in the best way.

Some benefits from the system

Operating:

- Elimination of all manual controls and possible mistakes
- FIFO rigorously followed-up.
- Simplification

Managerial:

- Complete elimination of losses due wrong validity dates
- Precise information

THE FUTURE IS

APK

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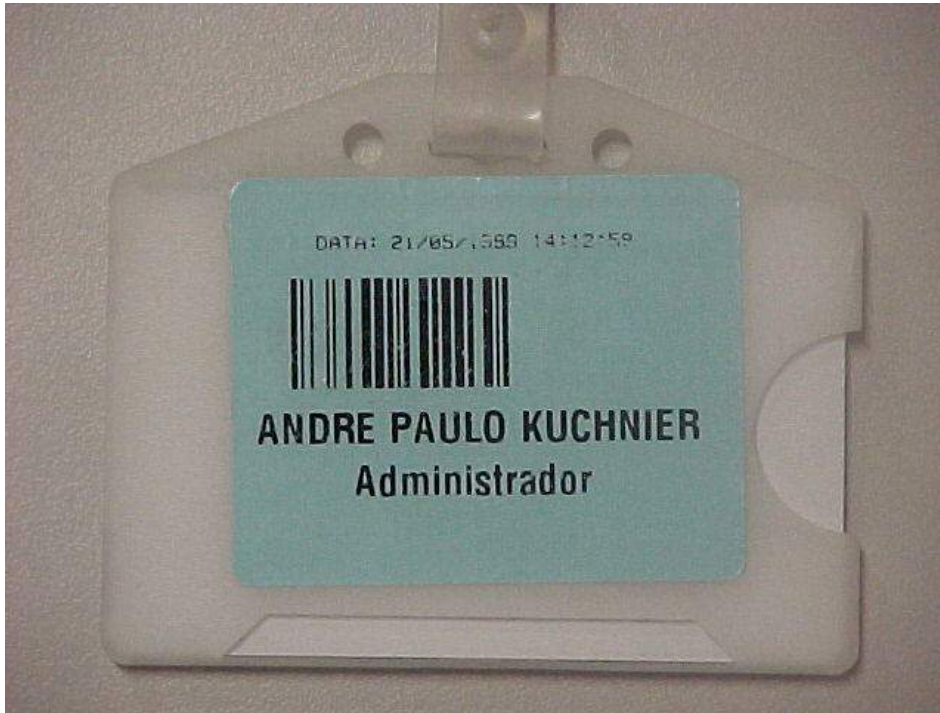
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