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implementation of rlink-pppi at a pulp mill

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Klabin Group







Klabin group is the largest paper manufacturer and the second largest pulp manufacturer in Brazil, as well as leading 10 out of the 11 markets for packaging and tissue paper items in which it is active.

location of klabin's sites

28 INDUSTRIAL SITES

🖊 Planted Forests

Angatuba	-	SP
Telêmaco Borba	-	PR
Correia Pinto	-	SC
Otacílio Costa	-	SC
Guaíba	-	RS

🧼 Pulp

Camaçari	- BA
Angatuba	- SP
Telêmaco Borba	- PR
Correia Pinto	- SC
Otacílio Costa	- SC
Guaíba	- RS

瞯 Packaging Paper

Goiana	-	PE
Ponte Nova	-	MG
Guapimirim	-	RJ
Angatuba	-	SP
Piracicaba	-	SP
Telêmaco Borba	-	PR
Correia Pinto	-	SC
Otacílio Costa	-	SC

Newsprint

Telêmaco Borba - PR



🖾 🗋 Printing

Guaíba	-	RS
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💖 Corrugated Containers

Goiana	-	PE
Feira de Santana	-	BA
Betim	-	MG
Rio de Janeiro	-	RJ
Jundiaí I e II	-	SP
Itaquaquecetuba	-	SP
Piracicaba	-	SP
Itajaí	-	SC
São Leopoldo	-	RS

] Multiwall Bags

Brazil

Correia Pinto	-	SC
Lages I e II	-	SC

Argentin a Pilar



Brazil

Santo Amaro	-	BA
Mogi das Cruzes	-	SP
Cruzeiro	-	SP
Correira Pinto	-	SC

Argentin a Bernal

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klabin bacell

Klabin Bacell, located in Camaçari, State of Bahia, produces dissolving pulp used primarily in the textile filaments, acetate grade and food industry.

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the plant



the plant is one of the world's most modern bleach dissolving pulp plants which works with modern technology alternatives and high automation degree in its process control, managed by an **ISO 9002 certified Quality System.** It is the first industrial unit in its category to produce prehydrolysis Kraft Dissolving Pulp through TCF system (Total Chlorine Free), which is by itself one of the most significant evidences of its environmental performance.



SAP/R3 at Klabin context

Almost all sites of Klabin in Brazil run SAP/R3;

The RLINK project at Klabin Bacell

- Bacell was the first Klabin mill where PI System was installed (PI 2 System in 1995);
- The implementation of SAP/R3 4.6c at Bacell started in March, 2001 and the go-live happened on December 1st;
- RLINK PPPI implementation at Bacell started three months later (June);
- Project Team:
 - Maria Helena Del Grande (Project manager Klabin Bacell)
 - Adroaldo Munhoz (Team Leader Cybertecnica)
 - Flavio Maeda (Analyst Cybertecnica)

RLINK Cybertecnica's expertise

- Both Adroaldo and Flavio attended the RLINK class at OSI office in Germany;
- The whole implementation of RLINK at Klabin Bacell;
- Complementation of the RLINK solution at CSN with standard PI monitoring tools (PI-PB and VBA).

project overview

- RLINK PPPI project was divided in two major parts:
 - migration from PI 2 system to PI 3.3 system running in a W2K machine;
 - implementation of RLINK PPPI (WNT machine).

Original pi system configuration



actual pi configuration





Registry configuration

Registry Key	Parameter	Value
PI_INFO	PI_INIFILEWITHPATH	C:\PIPC\DAT\PILOGIN.INI
	PI_PASSWORD	
	PI_USERNAME	piadmin
PLANT_SUITE_INFO	DBNAME	plant_suite
	PASSWORD	
	SERVERNAME	KBSRV05
	USERNAME	rlink
SAP_INFO	CLIENT	900
	DESTINATION	OSISOFT
	LANGUAGE	PT
	PASSWORD	
	SERVER_DEST	OSI_2
	TCRDPATH	C:\RLINK\PPPI\CLIENT\FE
	TCRPPATH	C:\RLINK\PPPI\CLIENT\FE
	USERNAME	KBRLINK
	SAP Service	sapgw00
	SAP Host	10.0.0.174
	PROGRAM ID	KBSRV05.tcrd.exe



Cybertécnica data flow diagram



pulp production stages

Continuous process



Discrete process

Resource networks

Continuous process

- PMADE
- PMARR
- PBRAN
- RECUP

- wood preparation
- unbleached pulp production
- bleached pulp production
- recuperation phase
- Discrete process
 - SFARD

- packaging of the final product into bales
- SBOB packaging of the final product into reels
- However all sub-plants are of type BPI (PI-Batch Plant)

Activities and materials - PMADE

ELAPSED TIME			0,856	MIN
	ORG_COZ	EFLORG	0,5	M3
	INO_COZ	EFLINO	0,1	M3
		ACTIVITY1	0,2	56 MIN 5 M3 1 M3 2 MIN 5 MIN 5 MIN 3 MIN 31 MIN 32 MIN 33 MIN 33 MIN 8 TAS 19 XY 77 XX 52 ZZ 52 XY
RESOLIDOE		ACTIVITY2	0,15	MIN
RESOURCE		ACTIVITY3	0,23	MIN M3 M3 MIN MIN MIN MIN MIN MIN MIN MIN XY XX ZZ
	RESOURCE ID	ACTIVITY4	0,23 MIN (4 0,31 MIN (5 0.07 MIN	
		ACTIVITY5	0,07	MIN
		ACTIVITY6	0,23	MIN
	WOOD		0,8	TAS
	MATERIAL1		0,856 MIN EFLORG 0,5 M3 EFLINO 0,1 M3 ACTIVITY1 0,2 MIN ACTIVITY2 0,15 MIN ACTIVITY3 0,23 MIN ACTIVITY4 0,31 MIN ACTIVITY5 0,07 MIN ACTIVITY6 0,23 MIN 0,019 XY 0,477 0,252 ZZ 0,252 0,252 XY 0,252	
	MATERIAL2		0,477	M3 M3 MIN MIN MIN MIN MIN MIN MIN XY XX ZZ
MATERIAL	MATERIAL3		0,252	ZZ
	MATERIAL4		0,252	XY
	ENERGY		14,133	KWH
	INDUSTRIAL WAT	ER	0,505	M3

production reporting -data flow

SAP/R3



material tag and common name tables - PMADE

material_id	resource_id	quantity_tag_id		batch_tag_id	misc_tag1
INDUSTRIAL WATER	PICADOR	100AGUACONS.CALC	С		
CAV_RECEITA_1	PICADOR	102CAVACO.MI	Р		102STORAGE_LOCATION.MI
CAV_RECEITA_2	PICADOR	102CAVACO.MI	Р		102STORAGE_LOCATION.MI
CAV_RECEITA_3	PICADOR	102CAVACO.MI	Р		102STORAGE_LOCATION.MI
CAV_RECEITA_4	PICADOR	102CAVACO.MI	Р		102STORAGE_LOCATION.MI
CAV_RECEITA_5	PICADOR	102CAVACO.MI	Р		102STORAGE_LOCATION.MI
ENERGY	PICADOR	100ENERCAV.CALC	С		
WOOD	PICADOR	101WOOD_TAG.MI	С	101BATCHID_TAG.MI	
MATERIAL1	PICADOR	101MATERIAL_TAG1.MI	С	101BATCHID_TAG1.MI	
MATERIAL2	PICADOR	101MATERIAL_TAG2.MI	С	101BATCHID_TAG2.MI	
MATERIAL3	PICADOR	101MATERIAL_TAG3.MI	С	101BATCHID_TAG3.MI	
MATERIAL4	PICADOR	101MATERIAL_TAG4.MI	С	101BATCHID_TAG4.MI	
MATERIAL5	PICADOR	101MATERIAL_TAG5.MI	С	101BATCHID_TAG5.MI	
MATERIAL6	PICADOR	101MATERIAL_TAG6.MI	С	101BATCHID_TAG6.MI	

resource_id	Common_name	tag_id
INO_CAV	SAP_EI	100EFLINORG.CALC
ORG_CAV	SAP_EO	100EFLORG.CALC
PICADOR	SAP_02	100MAQHCAV.TOT
PICADOR	SAP_03	100HHCAV.TOT
PICADOR	SAP_61	100DIFCAV.TOT
PICADOR	SAP_62	100OUTVARCAV.TOT
PICADOR	SAP_64	100MAPCAV.TOT
PICADOR	SAP_DP	100DEPRECAV.TOT

activities for wood preparation

- Organic liquid effluent
- Inorganic liquid effluent
- Machine working hours direct costing
- Machine working hours indirect costing
- Man working hours direct costing
- Depreciation

campaign manager

RECEITA DE PRODUÇÃO DE CAVACOS

02/11/2001

Descuris for de Controle							10101111
Prescrição de Controle	Status	Material		UN Tota	al Plan	Total Prod	Saldo
10000000000000181	Parcial	CAV_REC	EITA_1	TAS 1,10	000	24,9183	
10000000000000182	Criada	CAV_REC	EITA_2	TAS 1,30	000		1,3000
Interromper OP		Inviar Parcial	F	inalizar OP		Detalhes da	OP
DES DA ORDEM DE PR	OCESSO	1					
			Data/Hora	do último apor	ntarment	02-nov-0	1 10:51:42
escrição	Tip	o Qtde Prog.	Total Parcial	Último Valor	UN	Lote	
avaco receita 1	P	1,1000	24,9183	24,9183	TAS		
gua Industrial	C	0,5560	0,2300	0,2300	M3		
nergia Eletrica	C	15,5460	21,1900	21,1900	KWH		
ATERIAL ¹	C	0,2780	0,0000		XX		
ATERIAL2	. C	0,0110	0,0000		XX		
MATERIAL 3	С	0,0210	0,0000		XX		
NATERIAL 4	С	0,2780	0,0000		XX		
MATERIAL5	C	0,5250	25,1700	25,1700	XX	PICADO	R
	Interromper OP DES DA ORDEM DE PR escrição avaco receita 1 gua Industrial nergia Eletrica IATERIAL 1 IATERIAL 2 IATERIAL 3 IATERIAL 4 IATERIAL 5	Interromper OP I Interromper OP I DES DA ORDEM DE PROCESSO Tip avaco receita 1 P gua Industrial C Interrial Eletrica C Interrial 2 C Interrial 3 C Interrial 4 C	Interromper OP Enviar Parcial DES DA ORDEM DE PROCESSO escrição Tipo Qtde Prog. avaco receita 1 P 1,1000 gua Industrial C 0,5560 nergia Eletrica C 15,5460 IATERIAL 1 C 0,0210 IATERIAL 3 C 0,0210 IATERIAL 4 C 0,2780	1000000000000000000000000000000000000	Interromper OP Enviar Parcial Finalizar OP Interromper OP Enviar Parcial Finalizar OP Dess DA ORDEM DE PROCESSO Data/Hora do último apor Dess DA ORDEM DE PROCESSO Data/Hora do último valor escrição Tipo Qtde Prog. Total Parcial Último Valor avaco receita 1 P 1,1000 24,9183 24,9183 gua Industrial C 0,5560 0,2300 0,2300 nergia Eletrica C 15,5460 21,1900 21,1900 IATERIAL 1 C 0,02780 0,0000 IATERIAL 3 ATERIAL 3 C 0,0210 0,0000 IATERIAL 4 IATERIAL 5 C 0,5250 25,1700 25,1700	1000000000000000000000000000000000000	1000000000000000000000000000000000000

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campaign manager is used...

- to view general information of all recipes available in rlink for the specific resource network:
 - process order id;
 - control recipe id;
 - control recipe status in rlink;
 - material produced / planned quantity;
 - total produced and remaining quantity;

Ordem de Processo	Prescrição de Controle	Status	Material	UN	Total Plan	Total Prod	Saldo
05000000120	10000000000000181	Parcial	CAV_RECEITA_1	TAS	1,1000	24,9183	
05000000121	10000000000000182	Criada	CAV_RECEITA_2	TAS	1,3000		1,3000
4							•

campaign manager is used...

- to view further information about the bill of material of each Control Recipe:
 - material id;
 - description;
 - quantity programmed to be consumed / produced;
 - total quantity already reported to SAP;
 - last quantity reported of each material
 (PI_CONS and PI_PROD);
 - timestamp of the last production report (partial finish);

campaign manager is used...

to change the control recipe status:

Ordem de Processo	Prescrição de Controle	Status N Parcial C	taterial	UN	Total Plan	Total Prod	Saldo
05000000121	100000000000000182	Criada CAV_RECEITA_2		TAS	1,3000	24,0100	1,3000
۲							<u>></u>
Iniciar OP	Interromper OP	Enviar	Parcial	Finalizar OP		Detalhes da OP	
				Г	o finish the	process orde	er
		То	partially finish	the process of	rder reportin	ng productio	n to SAP
	To int	terrupt the proc	cess order in pro	ogress			
To start the con	trol recipe when there is	s no other proc	ess order in pro	oress			



manual input screen



control recipe status changings

ALC: NO.	Detalhes da Receita	×				
	Ordem de Processo 05000000080	Rede de Recursos				
	Descrição da Ordem de Processo Receita p/ Cavaco rec. 1					
	Prescrição de Controle 100000000000141					
	Material CAV_RECEITA_1					
	Quantidade Total Planejada - 10,0000					
	Início Planejado 31-out-01 11:20:10	Final Planejado 31-out-01 11:20:10				
	Início Real 31 out 91 13:28:46					
process order current	status áriso Alterações					
	Cód. Status	Timestamp				
1	4 Parcial	01-nov-01 13:56:27				
	4 Parcial	31-out-01 16:05:20				
finet and heating and states for	D (neutial finial)	31-out-01 13:28:47				
first production reported to SA	r (partial linish)					
timestamp when the process or	rder was started in RLINK					
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		iechar				

discrete process - packaging area

- after the production of the Bleached Pulp this material (HALB) is available for the next phase of the process: the drying phase;
- after the bleached pulp has been dried it needs to be prepared to be shipped to the customer. The final product (FERT) can be shipped into reels or bales. Each unit shipped to the customer is called Bacell lot;

the interaction between RLINK and the packaging line

- The process control is performed by a software that controls the packaging line. It communicates with equipments situated in the plant floor such as the scale and the printer;
- This application sends and receives data from RLINK and PI;
- The process information is continuously sent to RLINK in background.



the process flow



questions ??