

REAL-TIME PERFORMANCE MANAGEMENT FOR THE ENTERPRISE

RtPM



REAL-TIME PERFORMANCE MANAGEMENT FOR THE ENTERPRISE

RtPM



Presenter's Name

Presenter's Title

Subject Title

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 - Sub Bulleted text line one
- Bulleted text line two
- Bulleted text line three
- Bulleted text line four





OSIsoft™



REAL-TIME PRODUCTION

THROUGHOUT THE ENTERPRISE

Product Collaboration using ProcessPoint at Dow Reichhold Specialty Latex

Outline

- **Dow Reichhold Specialty Latex**
- **ProcessPoint Drivers**
- **Project Scope**
- **Anticipated Benefits**
- **Summary**



Dow Reichhold Specialty Latex LLC



Dow Reichhold Specialty Latex

- **50/50 joint venture of The Dow Chemical Company and Reichhold, Inc. (DRSL)**
- **Formed in January 2002**
- **World's largest producer of specialty latex**
- **Develops customized technologies & products**
- **Innovation, speed and teamwork are key elements of the DRSL business model**



Dow Reichhold Specialty Latex LLC



Locations

- **Headquarters and Research & Development**
 - Research Triangle Park, NC
- **Primary Manufacturing Locations**
 - Cheswold, Delaware
 - Kensington, Georgia
- **Other Manufacturing**
 - North America , Europe
Latin America , Asia/Pacific Region



Dow Reichhold Specialty Latex LLC



Products

➤ Polymer Types

- Styrene Butadiene
- Nitriles
- Acrylates
- Specialty Co-Polymers



Dow Reichhold Specialty Latex LLC



Applications

- **Adhesives**
- **Packaging**
- **Construction**
- **Gloves**
- **Nonwovens and Textiles**
- **Performance Resins**
- **Specialty Paper**
- **Latex Modified Concrete**



Dow Reichhold Specialty Latex LLC

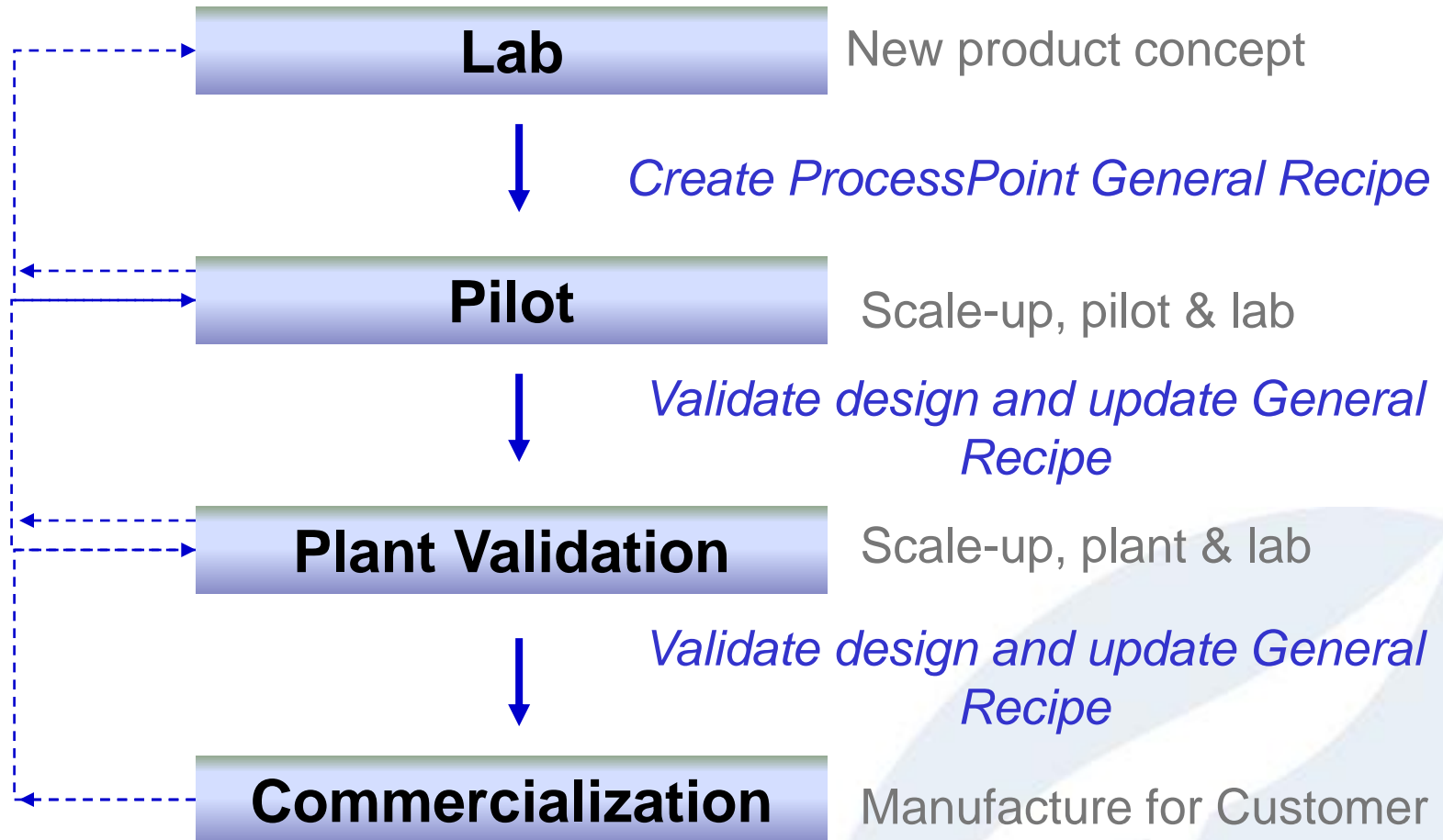


Drivers for ProcessPoint

- **Global R&D, Manufacturing and Sales**
- **Challenges of bringing systems together from Reichhold and Dow Chemical**
- **Recipe management in general**
 - Management of change for existing products
- **Product innovation management**
 - Speed to market for new products



Innovation Process



Project Team

- **Management Support**
 - VP of Technology – creates recipes
 - VP of Manufacturing – uses recipes
- **Core**
 - Manufacturing
 - Research & Development
 - Environmental, Health & Safety
 - Process Engineering
- **Other Team Members**
 - Finance, Purchasing, Pilot Plant



Key Requirements

- **“One version of the truth” through global database**
 - Across departments & geographical locations
- **Facilitate company-wide collaboration**
- **Flexible recipe development & management**
 - Key ingredients, activity based descriptions
- **Searchable recipe database**
 - Legacy data was in Excel, difficult to manage
- **Management of change**
 - Audit trail, Electronic approvals, Versioning
- **Security of intellectual capital**



Other Factors in Selection of ProcessPoint

- **ISA S88 General Recipe Standard**
- **Raw material management**
- **Role based views using Display Templates**
 - Internal & Customer
- **Flexibility for additional uses of software**
 - Marketing, Regulatory, Enterprise accounting
- **Positive experience with OSIsoft**
 - Using PI software at manufacturing sites



Project Scope

- **Raw Materials**
 - Properties
- **Intermediates & Products**
 - Properties
 - Formula
 - Procedures
- **Final Products**
 - Key properties
 - Packaging data



Project Scope – Raw Materials

- **Each vendor raw material specification is authored, approved & versioned by Purchasing/Technology/EHS**
- **Latest specifications accessed in real time by Receiving Personnel to ensure C of A compliance**
- **R & D, Manufacturing have real-time access to the most recent approved raw material data and related documents**



Project Scope – Intermediates & Bulk Product

➤ Technology

- Typical properties
- Quality specification limits
- “Dry Parts” activity based formula
- General recipe composition, procedure, specifications

➤ E H & S

- Health, safety and environmental risks
- Labeling needs
- Regulatory compliance status

➤ Manufacturing

- Product scale-up
- Master Recipe



Dow Reichhold Specialty Latex LLC



Project Scope – Packaged Product

- **Package codes**
- **Key final product properties**
- **Product display templates used by salespeople and customers**



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General Tab

Item: 99999.Lab.0

File View Tools Help

Open for Edit Save and Close Save Duplicate Signoff Status Verify Delete Item

Template
General
Attributes
Bill of Materials
Procedure
Stage Details
Approvals
Other Information
Verification
Related Documents
Image
Audit Trail
Referenced BOMs

Identity

ID 99999

Variant Lab

Version 0 Status Developmental

Alternate ID

Name Example

Description

Parent

Class FM - Training - Parent

Data Group DRSL\FM - Parent

Item UOM Pounds

Dates

Effective Date 3/16/2004

Expiration Date 3/16/2004

Item Type

☐ Solid

☒ Liquid

☐ Gas

☐ Part

BOM Settings

☒ Item is the primary product

☒ Adjust amounts based upon Activity

☒ Adjust amounts based upon ratio total of 100%

Procedure Settings

☐ Enter Amounts as Allocated Percentages

☒ Enter Amounts as Ratio Percentages

Bill of Material

Item: 99999.Lab.0

File View Tools BOM Help

Open for Edit Save and Close Save Duplicate Signoff Status Verify Delete Item

Template General Attributes **Bill of Materials** Procedure Stage Details Approvals Other Information Verification Related Documents Image Audit Trail Referenced BOMs

Batch Size 223.2000 lb / Primary Product % 100.0000% = Total Weight 223.2000 lb

Output Totals:

	Name	Item	Descriptive Name	Type	Product Type	Formula Ratio	Allocated %	Formula Amount	Procedure Amount	Apply
1	99999	99999.Lab	Example	Liquid	Primary Product	100.0000%	0.0000%	223.2000 lb	0.0000 lb	
TOTALS						100.0000%		223.2000 lb	0.0000 lb	

Input Totals:

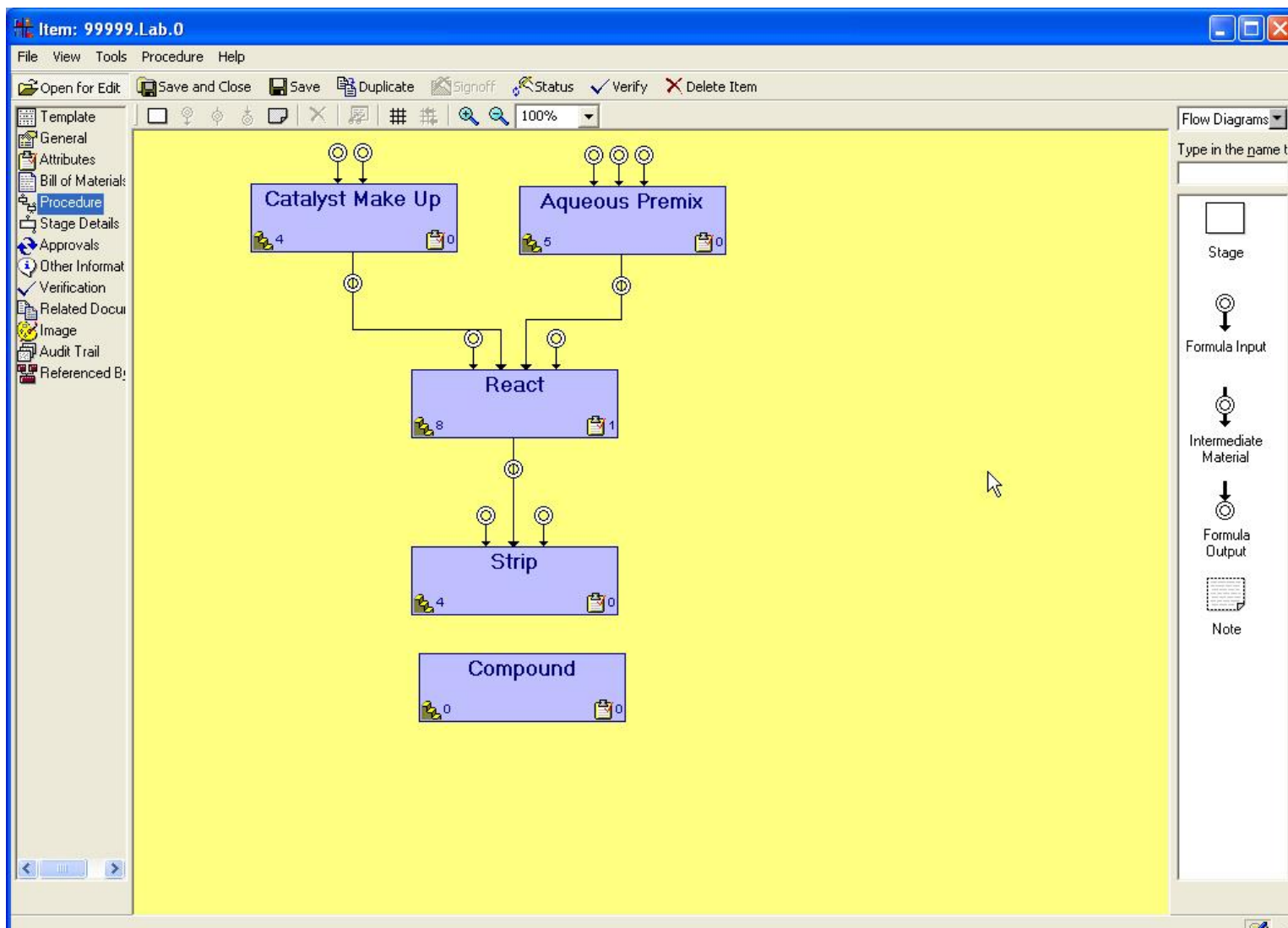
	Name	Type	Activity	Formula Ratio	Allocated %	Formula Amount	Procedure Amount	Ingredient Type
1	Butadiene	Liquid	100.0000%	50.0000%	50.0000%	49.9106 lb	49.9106 lb	Key Ingredient
2	Styrene	Liquid	100.0000%	48.0000%	48.0000%	47.9141 lb	47.9141 lb	Key Ingredient
3	Acrylic Acid	Liquid	100.0000%	2.0000%	2.0000%	1.9964 lb	1.9964 lb	Key Ingredient
4	Water	Liquid		110.0000%	120.0000%	105.4214 lb	115.0052 lb	Inactive Ingredient
5	Dowfax 2A1	Liquid	45.0000%	2.5000%	2.5000%	5.5456 lb	5.5456 lb	Ingredient
6	DEE FO 97-3A	Liquid	100.0000%	0.1000%	0.1000%	0.0998 lb	0.0998 lb	Ingredient
7	Ammonium Hydroxide	Liquid	28.0000%	0.4000%	0.4000%	1.4260 lb	1.4260 lb	Ingredient
8	Potassium Persulfate	Solid	100.0000%	0.1000%	0.1000%	0.0998 lb	0.0998 lb	Ingredient
9	Dowfax 2A1 1	Liquid	45.0000%	0.2500%	0.0000%	0.5546 lb	0.0000 lb	Ingredient
10	Dowicide A	Solid	100.0000%	0.2500%	0.0000%	0.2496 lb	0.0000 lb	Ingredient
11	Water 1	Liquid	100.0000%	10.0000%	0.0000%	9.9821 lb	0.0000 lb	Ingredient
			46.3327%	223.6000%		223.2000 lb	221.9975 lb	
				100.0000%		99.8211 lb	99.8211 lb	
							1.2025 lb	



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Procedure



Procedure – Stage Details

Stage: React								
<div> <div>General</div> <div>Steps</div> <div>Constraints</div> <div>Other Information</div> </div>								
	Order	Path	Action	Formula	Material	Allocated	Value	Descr
1	↓	0	Intermediate Input		Intermediate_Material		84.6614 lb	
2	↓	0	Agitate				5.0000 min	
3	↓	0	Temperature				140.0000 deg F	
4	⏏	1	Feed	Styrene	Styrene.DR	48.0000%	47.9141 lb	Feed over 360 minutes
5		2	Feed	Butadiene	Butadiene.DR	50.0000%	49.9106 lb	Feed over 360 minutes
6	⏏	3	Intermediate Input		Intermediate_Material		38.6529 lb	Catalyst feed over 60 minutes
7	↓	0	Temperature				180.0000 deg F	
8	↓	0	Intermediate Output		Intermediate_Material		221.3143 lb	



Procedure – Step Parameters

Edit Step - [3]

General Parameters

Parameters allows you to edit the process parameter values for the step.

	Valid	Display	Name	Data Type	Minimum	Value	Maximum	Pick List	Scalable	Control Point Type
1		<input checked="" type="checkbox"/>	Set Temperature	Real	0.0000 deg C	140.0000 deg F	120.0000 deg C		<input type="checkbox"/>	Not a Control Point
2		<input type="checkbox"/>	Start_Time	Real	0.0000 min	0.0000 min	10,000.0000 min		<input type="checkbox"/>	Not a Control Point
3		<input type="checkbox"/>	Stop_Time	Real	0.0000 min	120.0000 min	10,000.0000 min		<input type="checkbox"/>	Control Point

Edit Parameter...

OK Cancel Help



Procedure – Stage Constraints

Stage: React Add Edit Remove

General | Steps | Constraints | Other Information

Constraints

	Name	Type	Description
1	Material of Construction	String	Material of Construction.0 = Glass Lined Reactor

Pick List

Constraint Properties

☒ None
☐ Condition
☐ Range
☐ Set



Audit Trail with Details Shown

Item: 99999.Lab.0

File View Tools Help

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View Changes

Author	Change Date	Operation	Description
Ladish, Doug	3/15/2004 2:39:55 PM	Update	Object updated by user
Ladish, Doug	3/15/2004 2:18:27 PM	Update	Object updated by user
Ladish, Doug	3/15/2004 2:09:00 PM	Update	Object updated by user

Audit Trail Details

Audit Trail Details allows you to view all data has been changed.

Name	Change Type	From	To
Value	Change		0.1000 %
Item Attribute Solids (Microwave) Min.0			
Value	Change		47.0000 %
Item Attribute Solids (Microwave) Max.0			
Value	Change		49.0000 %
Item Attribute Viscosity RVT 20 rpm @25C Min.0			
Value	Change		25.0000 cP
Item Attribute Viscosity RVT 20 rpm @25C Max.0			
Value	Change		75.0000 cP
Bill of Materials Default			
Formula Input Butadiene			
Amount	Change	50.0000 lb	49.9106 lb
Description	Change		r
Formula Input Styrene			
Amount	Change	48.0000 lb	47.9141 lb
Description	Change		r
Formula Input Acrylic Acid			
Amount	Change	2.0000 lb	1.9964 lb
Description	Change		r
Formula Input Water			
Amount	Change	115.6587 lb	105.4214 lb
Description	Change		r
Formula Ratio	Change	120.0000	110.0000
Formula Input Dowfax 2A1			
Amount	Change	5.5556 lb	5.5456 lb
Description	Change		r
Formula Input DEE FO 97-3A			
Amount	Change	0.1000 lb	0.0998 lb

Close


Sample Role-Based Display

Item: Template.Template.0

File View Tools Help

Open for Edit Save and Close Save Duplicate Signoff Status Verify Delete Item

Template: training demo for screenshot

 **Dow Reichhold Specialty Latex LLC**
Bringing a world of experience to each application.™

Product Number: Template
Creation Date: Wednesday, March 10, 2004
Modification Date: Tuesday, March 16, 2004

*DOW REICHOLD PROPRIETARY INFORMATION
NOT FOR OUTSIDE DISTRIBUTION*

Monomer Composition

Polymer CAS #

Specifications

Property	Min. Value	Max. Value
----------	------------	------------

Reactor Ingredients

<u>Raw Material</u>	<u>Dry Parts</u>
---------------------	------------------

Stripper Composition

<u>Raw Material</u>	<u>Dry Parts</u>
---------------------	------------------

Compound Composition

<u>Raw Material</u>	<u>Dry Parts</u>
---------------------	------------------



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Sample Role-Based Display

Item: 99999.Lab.0

File View Tools Help

Open for Edit Save and Close Save Duplicate Signoff Status Verify Delete Item

Template: training demo for screenshot

 **Dow Reichhold Specialty Latex LLC**
Bringing a world of experience to each application.™

Product Number: 99999
Creation Date: Monday, March 15, 2004
Modification Date: Monday, March 15, 2004

**DOW REICHOLD PROPRIETARY INFORMATION
NOT FOR OUTSIDE DISTRIBUTION**

Monomer Composition

Butadiene	50.00
Styrene	48.00
Acrylic Acid	2.00

Polymer CAS #

Specifications

Property	Min. Value	Max. Value
Solids (Microwave)	47.0 %	49.0 %
pH	7.0	8.0
Residue 100 mesh		0.10 %
Viscosity RVT 20 rpm @ 25 °C	25 cP	75 cP
Residual Styrene		100 ppm

Reactor Ingredients

Raw Material Dry Parts

Done

Start | Contacts - ... | \\Rtpfps03\... | Microsoft P... | modified dis... | ProcessPoin... | Item: 999... | 11:26 AM

Include images and logo

Include “boiler plate” text

Display key data
from different
sections of
product definition



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Sample Role-Based Display

Item: 99999.Lab.0

File View Tools Help

Open for Edit Save and Close Save Duplicate Signoff Status Verify Delete Item

Template: training demo for screenshot

Template

- General
- Attributes
- Bill of Materials
- Procedure
- Stage Details
- Approvals
- Other Information
- Verification
- Related Documents
- Image
- Audit Trail
- Referenced B...

Specifications

Property	Min. Value	Max. Value
Solids (Microwave)	47.0 %	49.0 %
pH	7.0	8.0
Residue 100 mesh		0.10 %
Viscosity RVT 20 rpm @ 25 °C	25 cP	75 cP
Residual Styrene		100 ppm

Reactor Ingredients

Raw Material	Dry Parts
Butadiene	50.000
Styrene	48.000
Acrylic Acid	2.000
Water	110.000
Dowfax 2A1	2.500
Potassium Persulfate	0.100

Stripper Composition

Raw Material	Dry Parts
DEE FO 97-3A	0.100
Ammonium Hydroxide	0.400

Compound Composition

Raw Material	Dry Parts
Dowfax 2A1	0.250
Dowicide A	0.250
Water	10.000

Done

Start | [Icons] | [Contacts - ...] | [\\Rtpfs03\...] | [Microsoft P...] | [modified dis...] | [ProcessPoin...] | [Item: 999...] | [Icons] | 11:27 AM



Dow Reichhold Specialty Latex LLC




Sample Role-Based Display

Item: 99999.Lab.0

File View Tools Help

Open for Edit Save and Close Save Duplicate Signoff Status Verify Delete Item

Template: wet parts demo for screenshot

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99999

Monomer Composition

Butadiene	50.00
Styrene	48.00
Acrylic Acid	2.00

Ingredients

<u>SAP #</u>	<u>Raw Material</u>	<u>Wet Parts</u>
	Butadiene	49.9106
	Styrene	47.9141
	Acrylic Acid	1.9964
	Water	105.4214
	Dowfax 2A1	5.5456
	DEE FO 97-3A	0.0998
	Ammonium Hydroxide	1.4260
	Potassium Persulfate	0.0998
	Dowfax 2A1	0.5546
	Dowicide A	0.2496
	Water	9.9821
		223.2000

Done

Start | Contacts - ... | \\Rtpfps03\... | Microsoft P... | modified dis... | ProcessPoin... | Item: 999... | 11:24 AM



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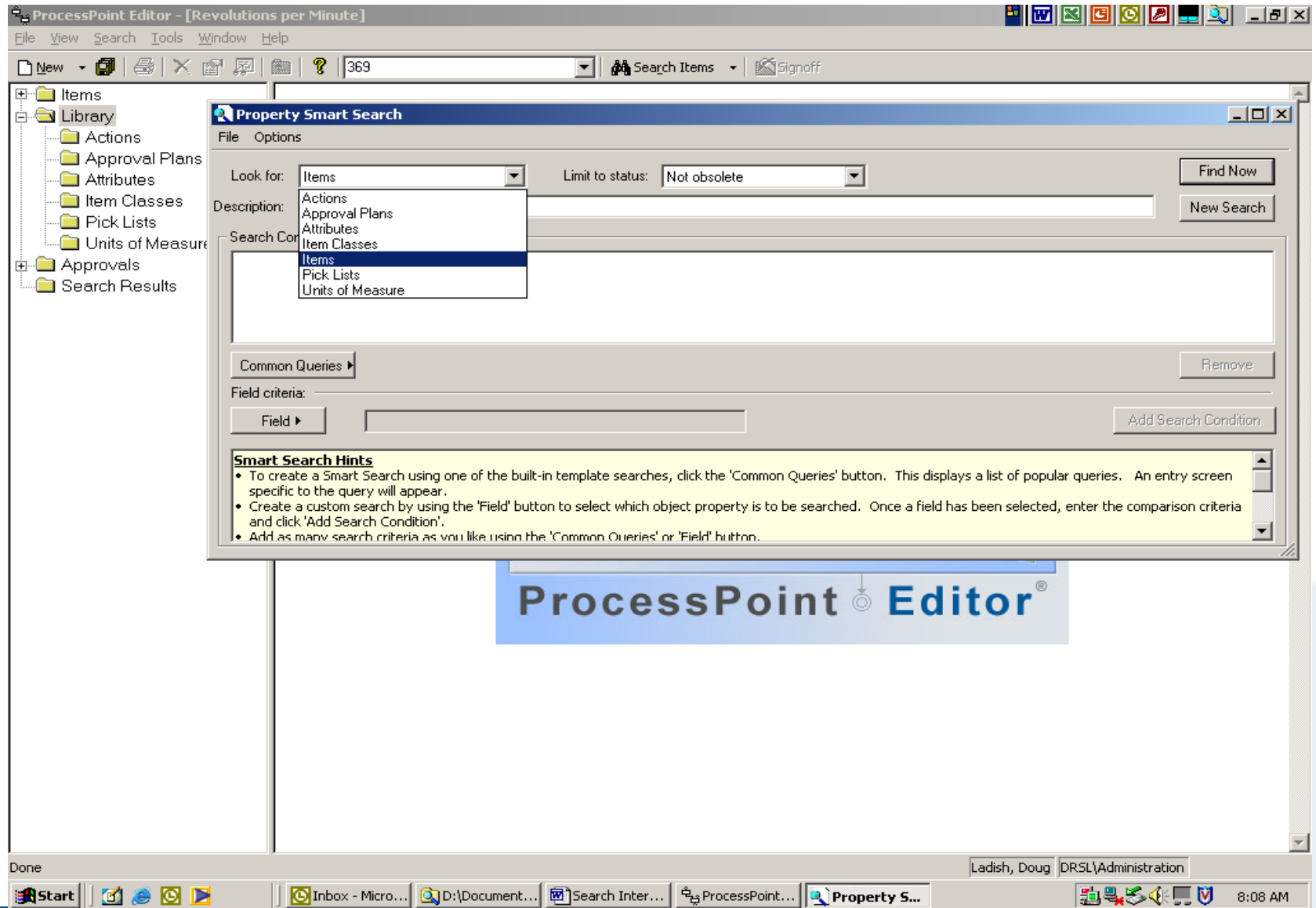


Anticipated Benefits

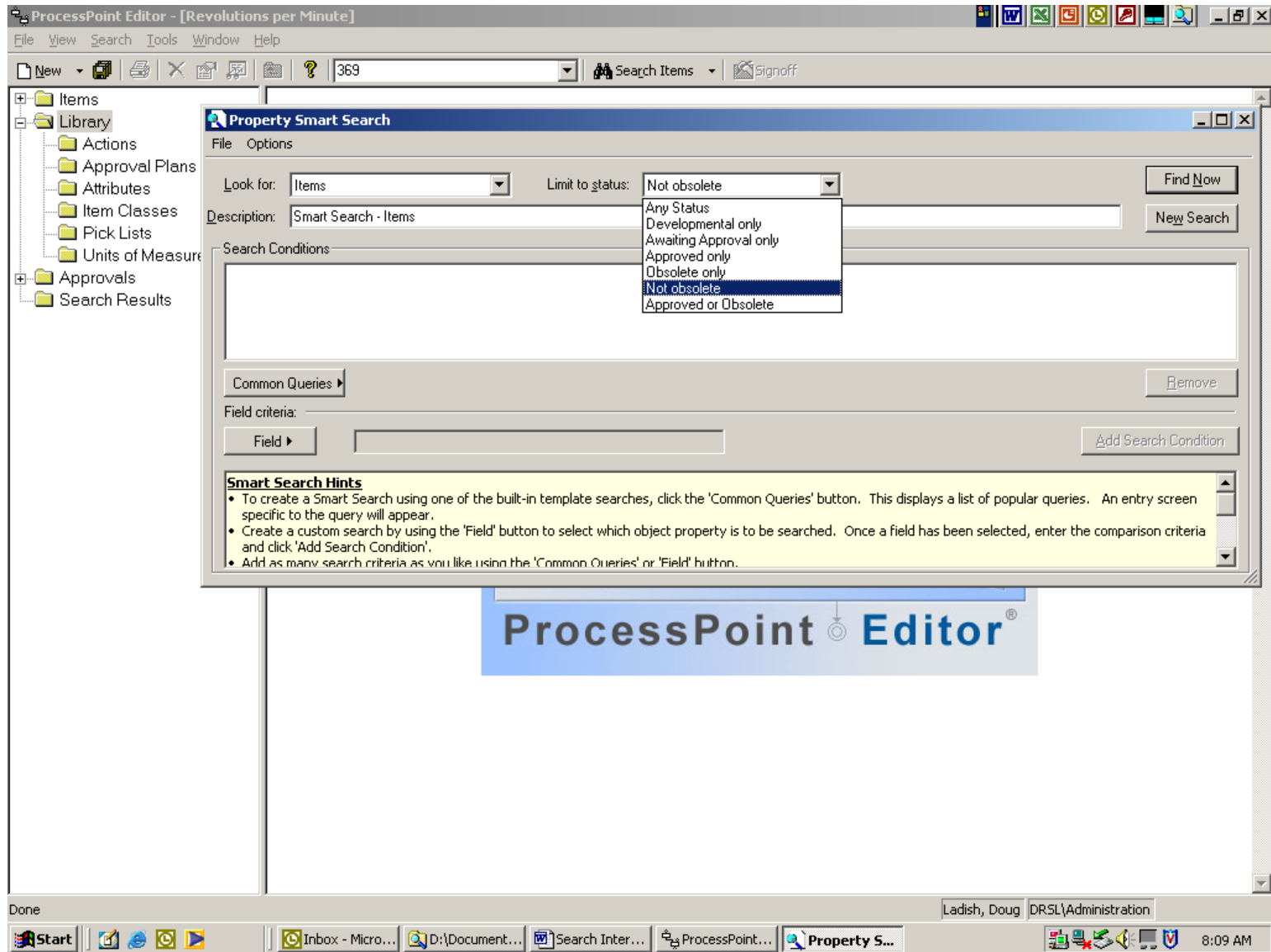
- **Enhanced collaboration**
- **Improved scale-up practices**
 - Fewer errors
 - Reduced time to manufacturing
 - Improved quality
 - Metrics on new product development process
- **Improved management of change**
 - Single authoritative source of data
 - Networked application
 - User defined displays of data
- **Searchable Data Base**



Search Capabilities



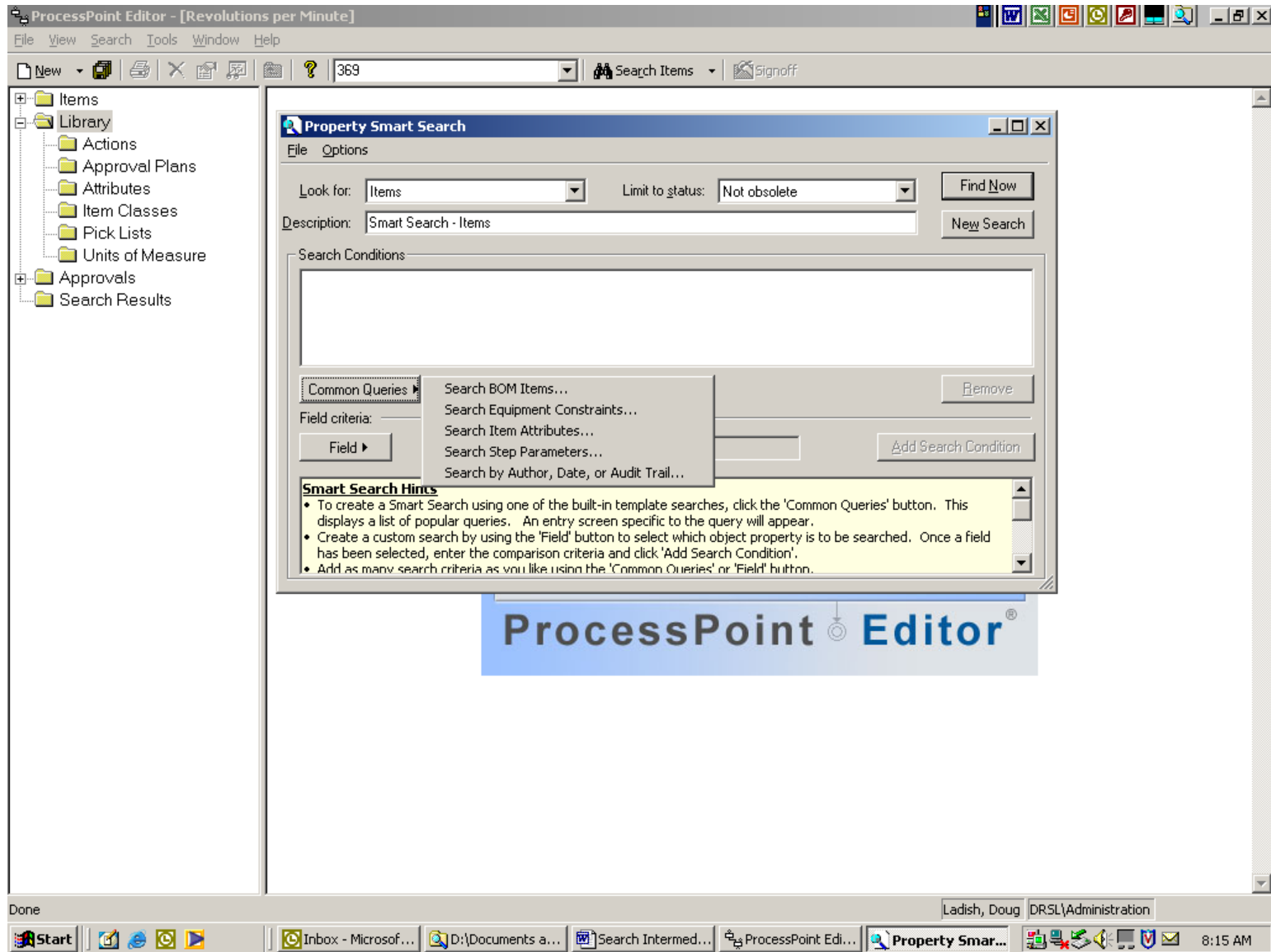
Search Capabilities



Dow Reichhold Specialty Latex LLC



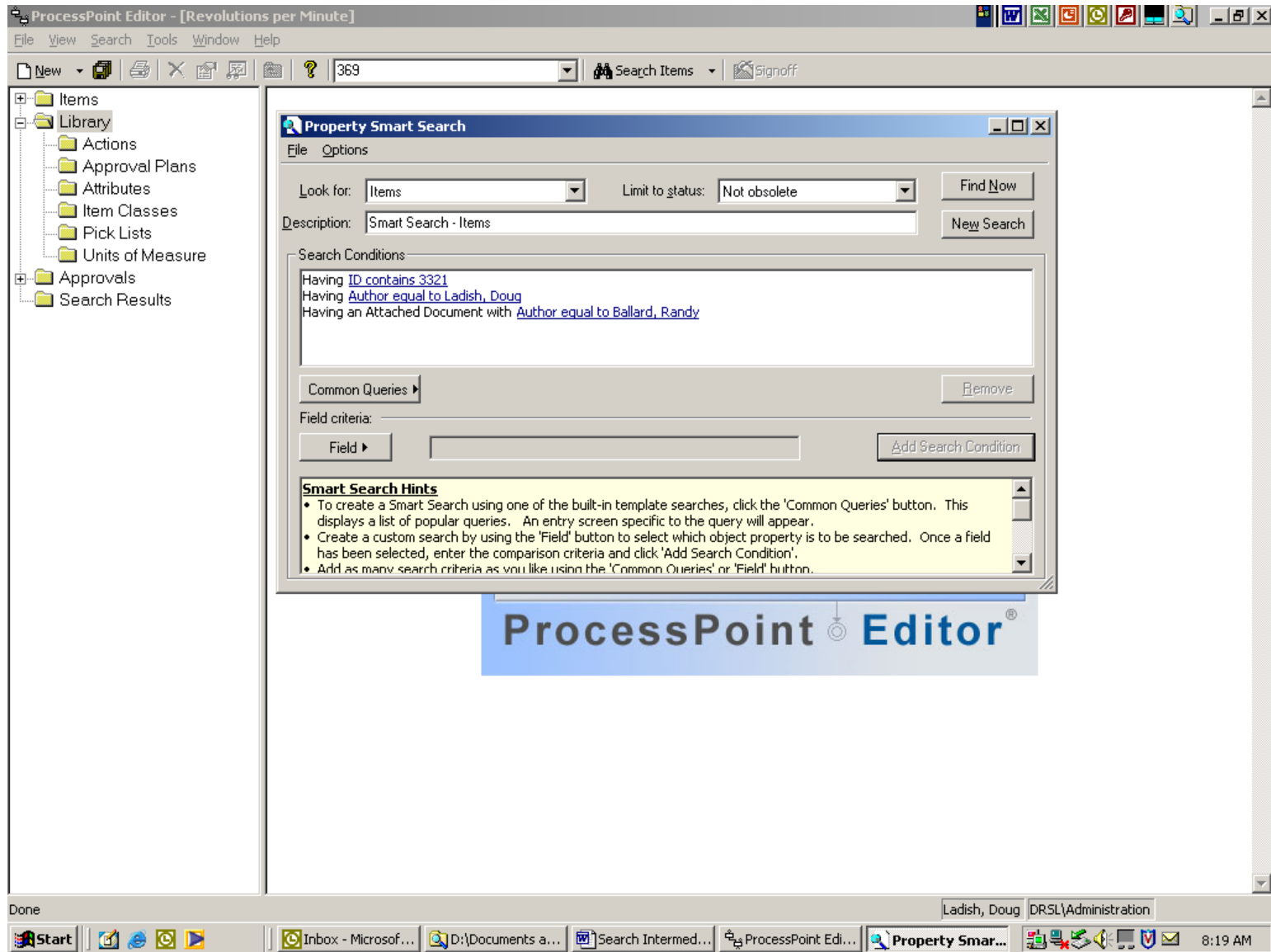
Search Capabilities



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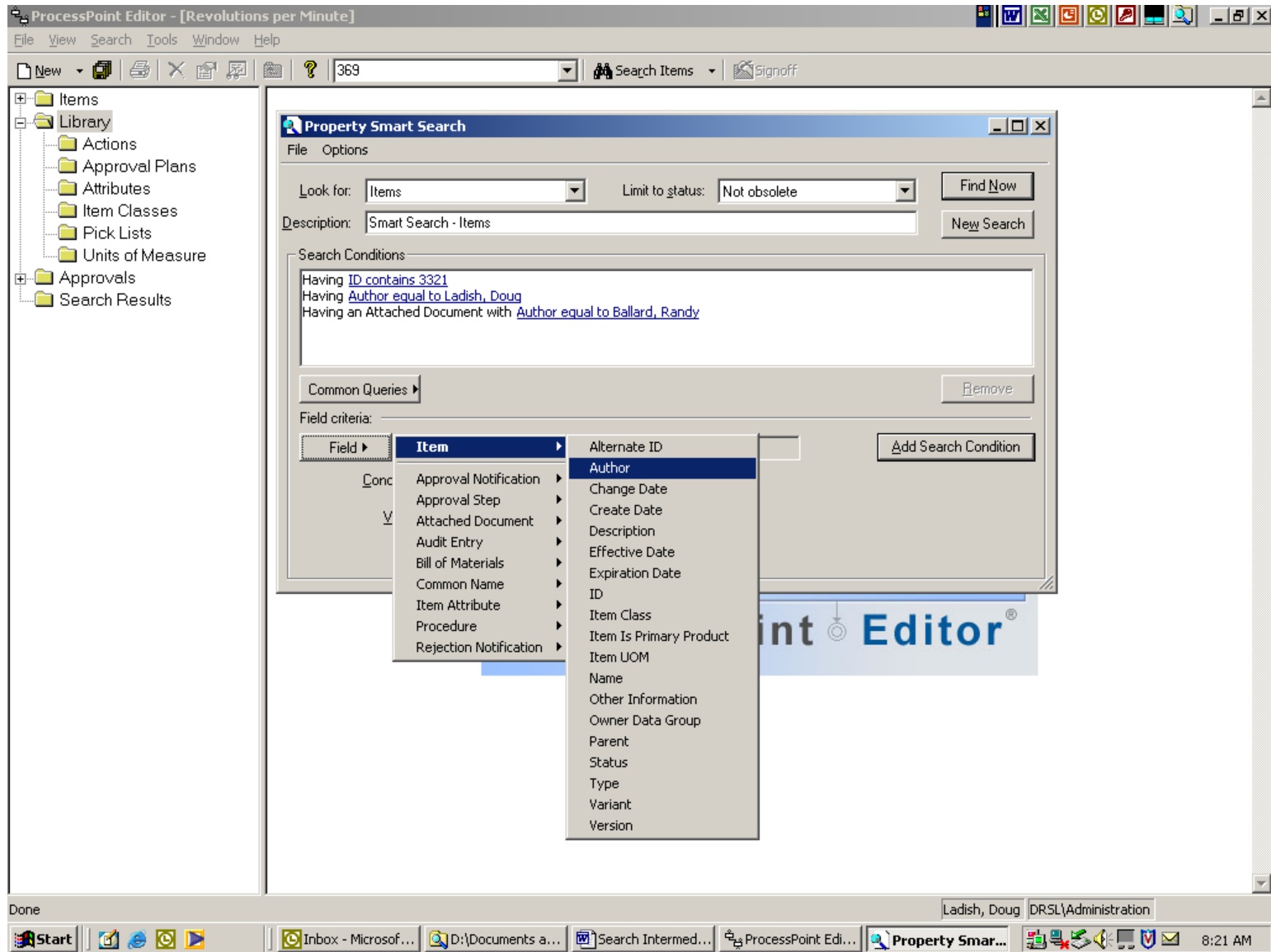
Search Capabilities



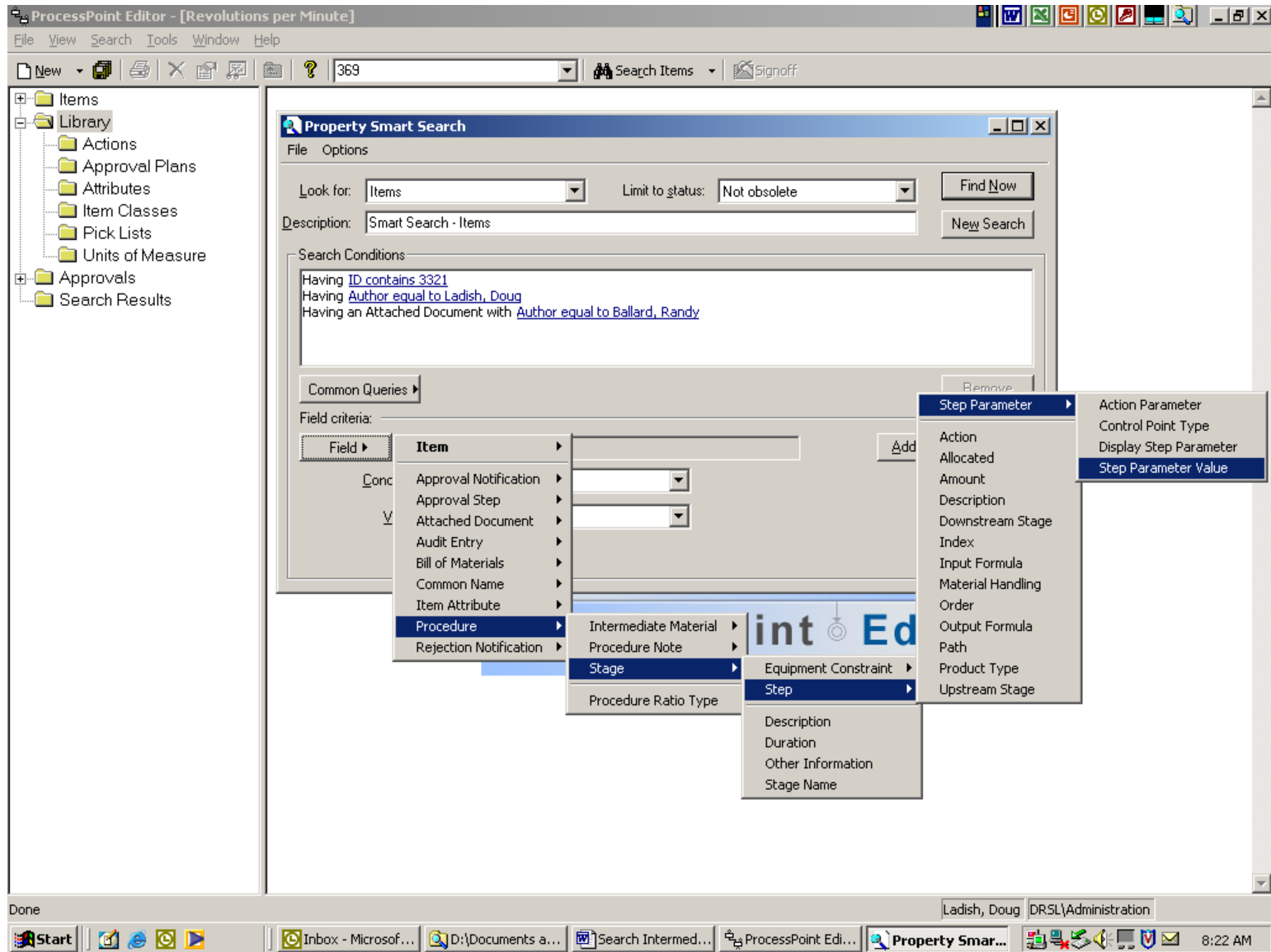
Dow Reichhold Specialty Latex LLC



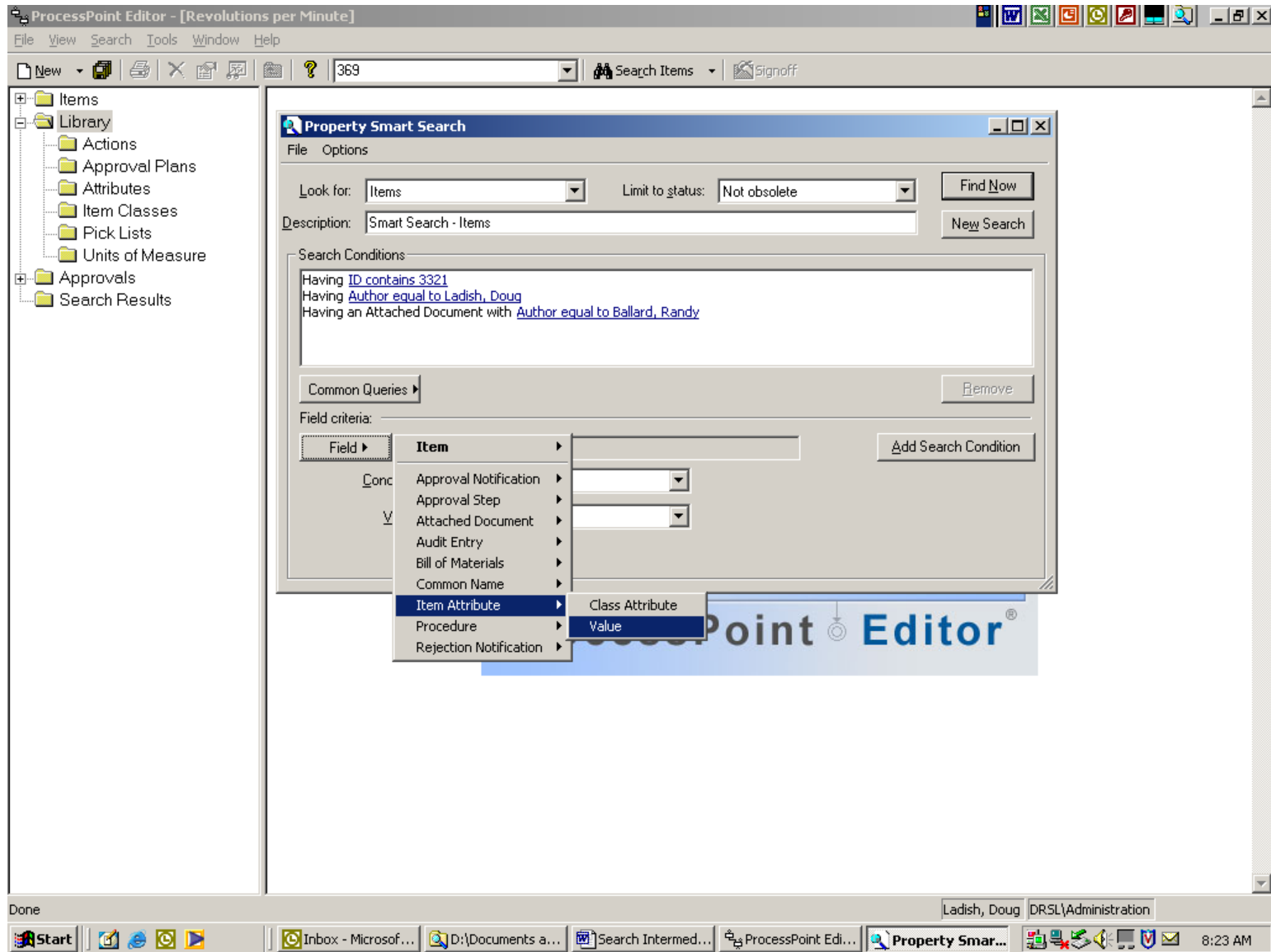
Search Capabilities



Search Capabilities



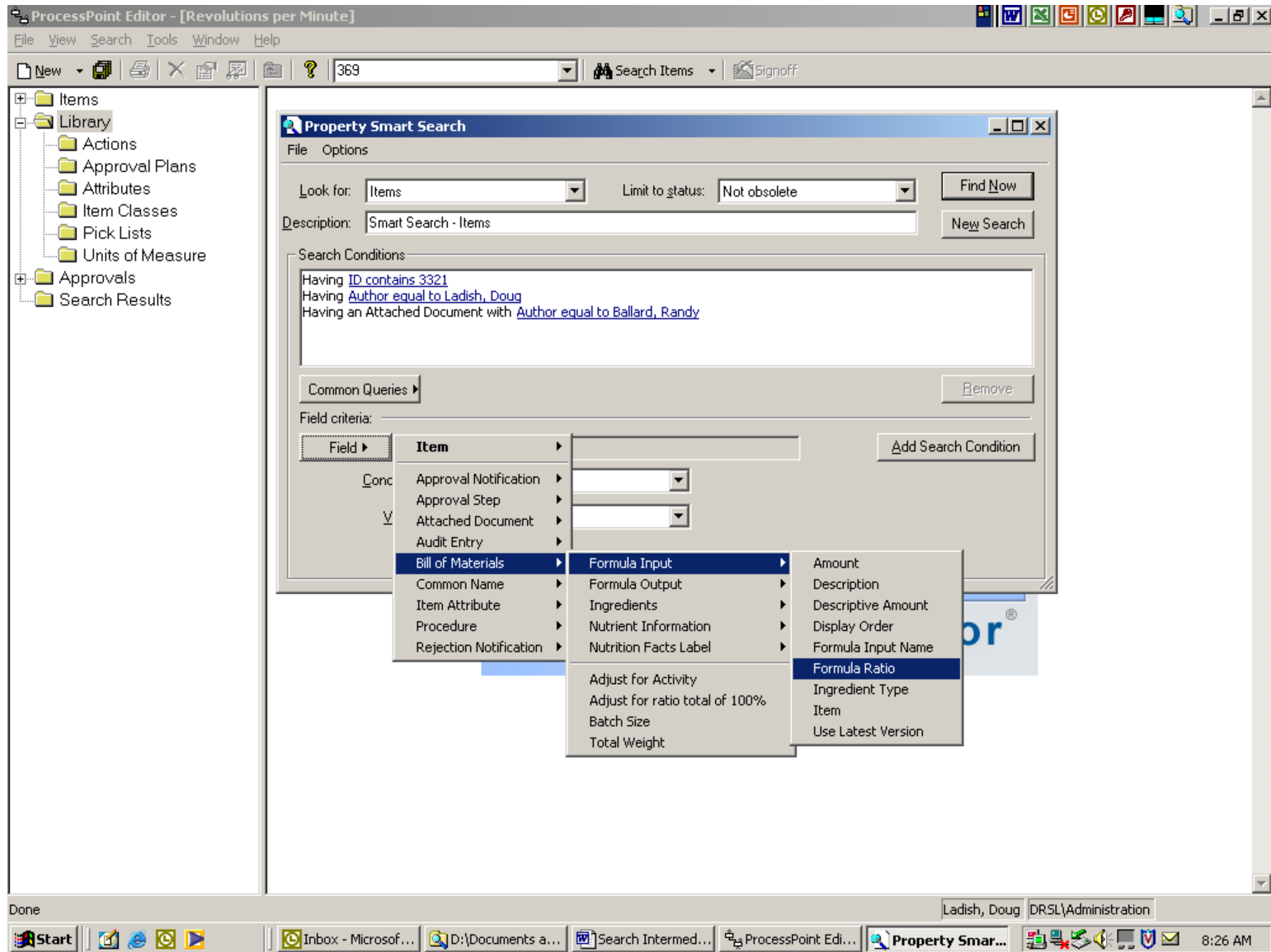
Search Capabilities



Dow Reichhold Specialty Latex LLC



Search Capabilities



Dow Reichhold Specialty Latex LLC



Summary – Benefits Realized

Single, authoritative source of product information for other business systems.

- Master Recipes – composition, DCS procedure and parameters, LIMS specifications
- Raw Materials – approved materials and receiving specifications
- Enterprise accounting – material masters, scheduling, costing
- Regulatory – national chemical inventories and FDA status
- Marketing – active products, package types and sales specifications

Product innovation management

- Recipes reflect both “wet” and “dry” composition
- Organizational collaboration
- Accuracy of development plans and results
- Searchable data base
- Record of changes

Intellectual property

- Faster, more insightful management of change
- Record of changes – both events and details
- Limited access to view or change as appropriate



End



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