



Product Governance & Compliance User Guide

Release 9.2.1

Part No. E11137-01

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September 13, 2007

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PREFACE

The Agile documentation set includes Adobe® Acrobat™ PDF files. The [Oracle Technology Network \(OTN\) Web site](#) contains the latest versions of the Oracle|Agile PLM PDF files. You can view or download these manuals from the Web site, or you can ask your Agile administrator if there is an Oracle|Agile Documentation folder available on your network from which you can access the Oracle|Agile documentation (PDF) files.

To read the PDF files, you must use the free Adobe Acrobat Reader™ version 7.0 or later. This program can be downloaded from the www.adobe.com.

The [Oracle Technology Network \(OTN\) Web site](#) can be accessed through **Help > Manuals** in both the Agile Web Client and the Agile Java Client. If applicable, earlier versions of Oracle|Agile PLM documentation can be found on the www.agile.com/support.

If you need additional assistance or information, please contact support@agile.com or phone (408) 284-3900 for assistance.

Before calling Agile Support about a problem with an Oracle|Agile PLM manual, please have ready the full part number, which is located on the title page.

Readme

Any last-minute information about Oracle|Agile PLM can be found in the Readme file on the [Oracle Technology Network \(OTN\) Web site](#).

Agile Training Aids

Go to the [Agile Training Web page](#) for more information on Agile Training offerings.

CHAPTER 1

Introduction to PG&C

This chapter introduces the Agile Product Governance & Compliance solution. It includes the following sections:

- ❑ *About Agile Product Governance & Compliance*
 - ❑ *Agile PLM Documentation for PG&C*
 - ❑ *PG&C Application Components*
 - ❑ *What's New in the PG&C Solution*
-

About Agile Product Governance & Compliance

Agile Product Governance & Compliance (PG&C) is designed to help manufacturers manage all kinds of product compliance, including the ability to audit the presence and amount of regulated substances used in their products, and to demonstrate that they responsibly dispose of, recycle, or re-use parts containing those substances.

Compliance Regulations

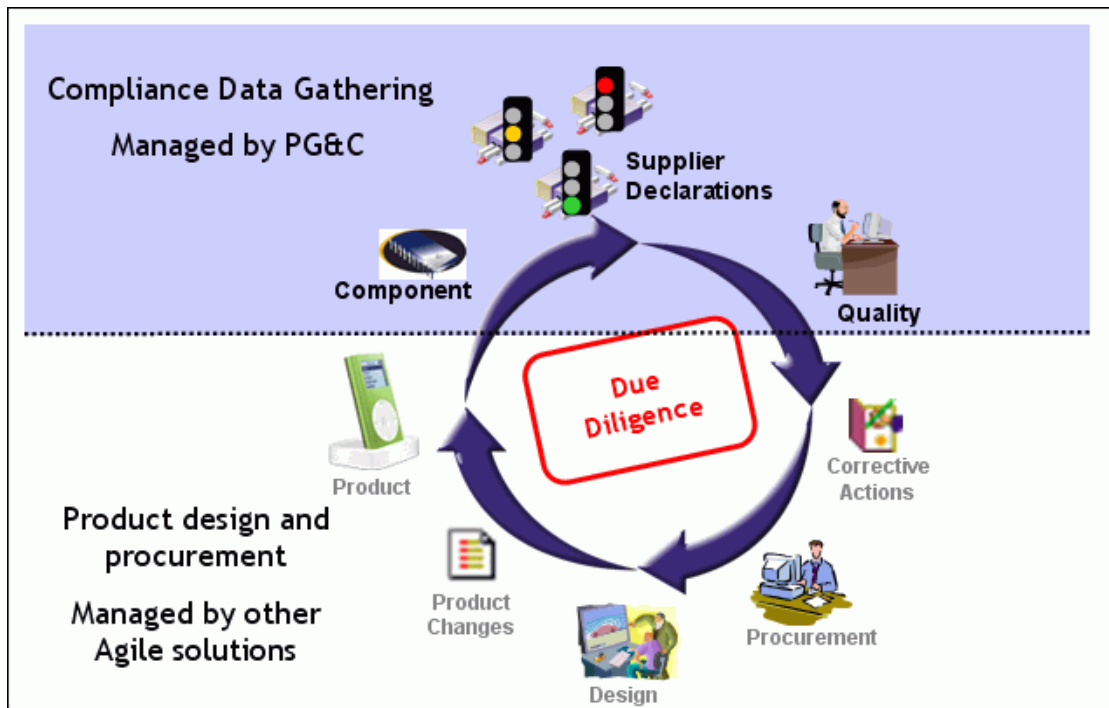
OEM manufacturers are required to take global responsibility to dispose of, recycle, or re-use electronics that contain hazardous substances. In addition to satisfying FDA regulations and ISO standards, any company that sells electronics equipment in an international market is subject to the OEM manufacturing regulations of their target markets. These may include one or more of the following:

- ❑ **United States:**
 - Good Manufacturing Practices
 - ISO Standards
 - U.S. Food & Drug Administration regulations
- ❑ **Europe:**
 - Good Manufacturing Practices
 - Restriction of Hazardous Substances (RoHS)
 - Waste of Electrical and Electronic Equipment (WEEE)
- ❑ **China:**
 - Restriction of Hazardous Substances (China RoHS)
 - Waste of Electrical and Electronic Equipment (China WEEE)
- ❑ **Japan:**
 - Japanese Green Procurement Survey Standardization Initiative (JGPSSI)
- ❑ **International:**
 - Joint Industry Guide (standards adopted by international companies, including IBM, Dell, Hewlett-Packard, others)

Compliance–Corrective Action Process

This figure depicts a process of due diligence concerning the compliance of existing products and new product designs. This is a “closed-loop” compliance corrective action process. Other Agile solutions – Product Collaboration, Product Quality Management, Product Cost Management, Product Portfolio Management – manage areas around the lower half of the circle. Product Governance & Compliance manages the compliance data-gathering area.

Figure 1-1: Closed-loop Compliance–Corrective action process



How PG&C Helps You Gather and Manage Compliance Data

People who manage the compliance process at the “buyer” site – compliance managers – must ensure that their company’s products adhere to government regulations and company policy. Agile PG&C helps you gather and analyze compliance data and to take appropriate corrective action.

PG&C is not only a communication vehicle between the compliance manager and information suppliers: it also manages the compliance of parts across multiple suppliers and multiple manufacturer parts.

Ultimately, PG&C rolls all this information up to provide a product-level view of compliance.

More specifically, compliance managers use PG&C to:

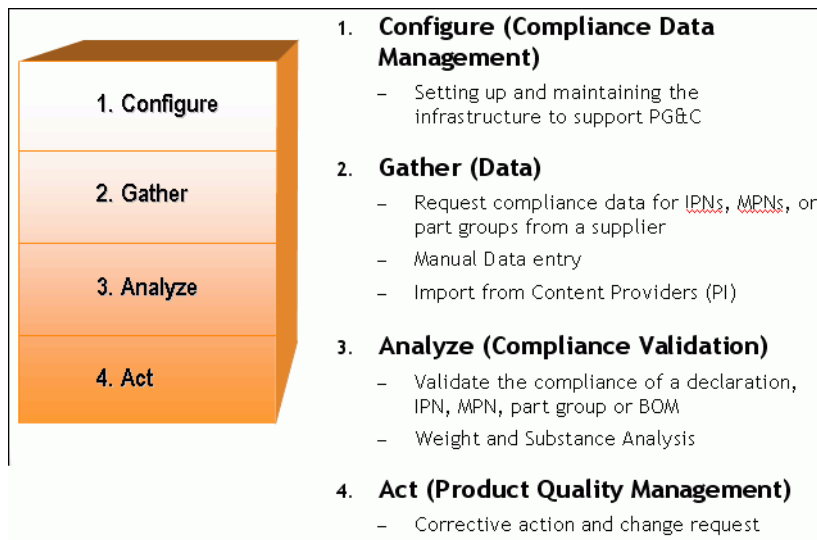
- ❑ Collect data about materials used to manufacture a product
- ❑ Review compliance across the Approved Manufacturers List (AML) of a part, across multiple suppliers (the Approved Suppliers List, or ASL), across BOMs, subassemblies, and of final products
- ❑ Generate reports to show the level of compliance
- ❑ Manage supporting documentation, such as descriptions of current regulations, recovery manifests, disposal certificates of destruction, supplier compliance surveys, and other customer-specific specifications.

At the supplier site, information suppliers use PG&C to complete and sign off on material declarations:

- ❑ Declare compliance with specifications concerning hazardous materials that may originate from its customers and from government agencies
- ❑ Disclose which hazardous substances are contained in the components and subassemblies it provides.

This diagram represents the various activities and tasks in the compliance process.

Figure 1-2: Activities and tasks in the compliance process



Levels of Due Diligence Using PG&C

It is important to note that the capabilities of the PG&C solution are not defined or constrained by the PG&C objects. Certain situations of due diligence may not require objects from all of the business classes. Before introducing the object types used in PG&C, here are some simple examples of this:

Specification Management

Define a specification, list exemptions, attach specifications to the product level. Let the system assign specifications to all parts within this BOM, and set declared compliance on the specification for a part. Also, let the system roll up the compliance information and review for compliance at the product level. This use case illustrates the usage of PG&C for general product compliance such as compliance with an FCC specification or with a MilSpec. In terms of substance-based environmental compliance, this is the lowest level of due diligence.

Declarations Gather Compliance Information

A higher level of due diligence is achieved by using a declaration process including a supplier sign-off to gather compliance information. Use declarations to collect information about the compliance of a part or a supplier with a certain specification.

Full Use of PG&C Business Objects

The highest level of due diligence for substances-based environmental compliance is achieved by the full use of PG&C object types. – substances, specifications, declarations, part families – as well as solution-oriented features of “non-PG&C” object types – items, manufacturer parts, suppliers – to produce comprehensive disclosure statements about compositions.

Summary

This simplified hierarchy demonstrates that you can tailor the use of the PG&C solution depending on the required type of compliance and the desired level of due diligence. Substances and even Declarations are not absolutely required to gather benefits from PG&C. Specifications are really the crucial object type. Moreover, Compositions – which can be assembled by simply adding a specification to a part and setting a compliance – are the collection of compliance data that is unique to Agile PG&C (compositions are discussed in several places, beginning page 2-2).

Agile PLM Documentation for PG&C

The Preface of this manual provides the URL to Agile documentation for current releases of Agile PLM. This manual assumes that Agile PLM has been installed and an Agile administrator has created Agile users with assigned roles that facilitate their work.

PG&C User Guide

This manual, *PG&C User Guide*, is a complete manual for working in the Agile PG&C solution. It describes how to work with the PG&C-specific business classes in Agile PLM 9.2.1 and the Request For Information (RFI) compliance process (see “What’s New in the PG&C Solution” on page 1-6). The final chapter contains information about managing your suppliers.

PG&C Supplier Guide

The *PG&C Supplier Guide* provides information for your supplier users to learn to work in Agile Web Client (and, if installed, the Microsoft Excel-based Client) to complete their end of your compliance process. They can access the Agile Documentation web site to download this guide, or you could send the PDF to them as an email attachment. Compliance managers should be familiar with the contents of the *Supplier Guide*.

Agile PLM Administrator Guide

Although Agile PLM end-users do not generally need to work with the *Administrator Guide*, that manual contains a chapter, “PG&C Settings,” that describes the steps for configuring PLM for PG&C users and the PG&C-related nodes in Administrator. A compliance manager – an PLM user who has been assigned the Compliance Manager role – may find useful information in that chapter and elsewhere in that manual.

Other Important Documentation for Working in PG&C

For a comprehensive introduction to Agile client interfaces, concepts, terms, and important cross-solution features, please refer to *Getting Started with Agile PLM*.

Important Chapters 3–5 of *Getting Started with Agile PLM* contain information that is preliminary to the information in this manual. (Please see the first three rows in the table below.)

Chapter 3 provides a thorough overview of Agile Web Client’s user interface and features. This guide does not cover that information.

Chapters 4 and 5 contain information about Agile PLM that is essential for all PG&C users.

This table lists *Getting Started* chapters and other Agile manuals that will help you master your tasks in Agile PG&C.

Table 1-1: Where to find related information

Feature or concept	Contained in this document	How to find the document
Web Client user interface and navigation — this is the only client in which to do PG&C work	<i>Getting Started with Agile PLM</i> , Chap. 3, “Navigating in Agile Web Client”	Choose Help > Manuals in the Java Client or Web Client menu bar. On the documentation web page (after selecting Product & Build & Search), click Getting Started in the list of user manuals.
Introduction to Agile PLM concepts and terminology	<i>Getting Started with Agile PLM</i> , Chap. 4, “Concepts and Terms in Agile PLM Solutions”	
Introduction to Agile business objects, including creating & deleting objects, actions, tabs, sharing, subscriptions, relationships, and references between objects	<i>Getting Started with Agile PLM</i> , Chap. 5, “Working with Objects”	
Using reports to gather data	<i>Getting Started with Agile PLM</i> , Chap. 6, “Working with Agile Reports”	
Searches	<i>Getting Started with Agile PLM</i> , Chap. 7, “Finding Agile Data with Searches”	
Workflows	<i>Getting Started with Agile PLM</i> , Chap. 8, “Routing Objects with Workflows”	
Attachments and file folders	<i>Getting Started with Agile PLM</i> , Chap. 9 & 10, “Working with Attachments” and “Working with File Folders.”	Choose Help > Manuals in the Java Client or Web Client menu bar. On the documentation web page (after selecting Product & Build & Search), click Import & Export in the list of user manuals.
Importing and exporting files and data	<i>Agile PLM Import & Export Guide</i>	
Importing and exporting files and data from/to an external (non-Agile) source	<i>Product Interchange Administration Guide</i> and <i>Product Interchange User Guide</i>	Choose Help > Manuals in the Java Client or Web Client menu bar. On the documentation web page (after selecting Product & Build & Search), click a PI title in the list of user manuals.

PG&C Application Components

PG&C has been configured for your company at the installation phase of Agile PLM. Your Agile administrator has further refined the solution by creating users like yourself with assigned roles and privileges, and has configured the pertinent business classes so you can create PG&C-specific objects (see “PG&C Business Classes” on page 2-1).

- ❑ Compliance managers and other users at the “buyer” company work in **Agile Web Client**.
- ❑ Your information suppliers also log in to Web Client but their assigned role dictates that the user interface that they use – the **Basic Supplier UI** – is greatly simplified from the version that you use. It is documented in *PG&C Supplier Guide*.
- ❑ **Microsoft Excel-based Client** uses predefined Excel templates to facilitate performing certain tasks. A template is available for the information supplier to complete JGPSSI declarations (see *PG&C Supplier Guide*). A template is also available for the buyer to perform “substance and weights rollups” in Excel.

It is also possible to create custom templates in Microsoft Excel; you can create Excel templates for any of the declaration classes in Agile PG&C. For more information, contact your Agile Solutions Delivery representative.

The Microsoft Excel-based Client requires:

- Windows desktop,

- Internet Explorer 5.0 or higher, to log in to Web Client, and
- Microsoft Office 2000 (Excel 2000).

Note Some companies do not permit their employees to download ActiveX controls to their desktop computers. Therefore, the Microsoft Excel-based Client may have to be implemented by the IT department of your company via a “push approach”: this automatically pushes the ActiveX control out to users’ desktops. Otherwise, your company can get the ActiveX or Plugin installer from the Agile Support website and install it on users’ desktops.

What’s New in the PG&C Solution

This section introduces the PG&C solution’s new features for Releases 9.2, 9.2.1, and 9.2.1.3.

New Features in PG&C 9.2.1.3

Agile PLM Release 9.2.1.3 is primarily a “service pack” but there are a few new features in the PG&C solution:

- Enhancements to the Substances and Weights Rollup (activated by **Actions > Rollup in Excel**)
- Japanese-language and other localized templates for compliance rollups in Microsoft Excel:
 - Japanese-language template for JGPSSI Declarations class;
 - Japanese-language template for the Substances and Weights Rollup feature used in Microsoft Excel-base Client;
 - Localized versions in Chinese, French, and German of the Substances and Weights Rollup feature used in Microsoft Excel-base Client.

Note The new Japanese-language templates are only available to customers who have purchased the Japanese Server License. Localized versions also need appropriate License Key. Also, the administrator must set users’ Language and Encode user preferences to the appropriate setting to work in that language in the Agile clients’ user interfaces. If you have questions about this, see your Agile administrator.

- Support Rev-specific specifications for items – with Agile 9.2.1.3, if a Specification is added to a rev, it would be available only for that rev. Prior to that, it was available to all revs.
- Support for declaration without a supplier – the administrator can set the Supplier attribute as Not Required in Java Client and you can create a declaration without a supplier.
- Support for non-Web suppliers on declaration – Declarations can be created with the Supplier attribute populated with a non-Web supplier.
- Performance improvements on scheduled compliance rollups:
 - A log session called **Compliance Rollup.log** lets users easily know rollup status, how many items are completed, any errors, information pertaining to large BOMs, and so forth;
 - With information coming from **Compliance Rollup.log**, events that used to be logged in the item’s **History** tab during a scheduled or manual rollup (for example, **Actions > Calculate Compliance**) are not logged now;
 - Compliance Rollup Task in Administrator can be changed and will take effect without restarting the server.

New Features in PG&C 9.2.1 (released May 2006)

These are new features and functionality for PG&C in PLM 9.2.1:

- Addition of two Declarations classes: IPC 1752-1 Declarations is a substance composition declaration, and IPC 1752-2 Declarations is a homogeneous material composition declaration; see “Declarations Classes and Contents” on page 7-3;
- XML-based integration to the IPC 1752-1 and IPC 1752-2 PDF forms is introduced;

- ❑ Importing compositions into manufacturer parts has been developed so you can import compositions and substances directly into manufacturer parts without having to go through the RFI process; see “Importing Compositions into Manufacturer Parts” on page 6-8;
- ❑ Inactivating compositions, also called archiving compositions, is a privilege-controlled ability to remove composition data that is not in compliance, which could affect the compliance of the entire assembly; see “Inactivating Compositions” on page 6-4;
- ❑ Administrator can rename the Compliance States, allowing the states to match your company’s terms (documented in *Administrator Guide*);
- ❑ Administrator can allow Exempt compliance states to not block the assembly’s compliance, via the “Treat Exempt as Compliant in BOM Rollup” setting (documented in *Administrator Guide*);
- ❑ Enhanced administrator setup for PG&C Process Extensions (documented in *Administrator Guide*);
- ❑ Further simplification of supplier user’s Web Client interface (documented in *PG&C Supplier Guide*).
- ❑ The Compliance Issues by Supplier report in Rel. 9.2 was removed from Rel. 9.2.1, and its functionality is now included in the Supplier Compliance Report.

New Features in PG&C 9.2 (released December 2005)

The Agile PLM 9.2 release offered a greatly expanded PG&C solution with many improved or new features from Agile PLM 9.0. These items summarize the main areas of enhanced functionality in PLM 9.2:

- ❑ Introduction of the **composition** as a combination of Part–Specification–Supplier (compliance) data and the **Bill of Substances (BOS)**, which permits the analysis of compositions in a part (see “Compositions as Collections of Specific Data” on page 2-2 and “Bill of Substances” on page 4-5)
- ❑ Expansion of **PG&C-specific business classes**, especially Substances and Declarations (see “Overview of Changes to Classes in PG&C 9.2 and 9.2.1” below and “PG&C Business Classes” on page 2-1)
- ❑ Introduction of the **Microsoft Excel-based Client** for performing some compliance tasks outside Agile PLM (see below)
- ❑ Introduction of Compliance Rollups, supported by administrative **Compliance Rollup Scheduling** and **Compliance Rollup Rule-Setting**.

Overview of Changes to Classes in PG&C 9.2 and 9.2.1

Most additions to the **Classes** node over PLM Releases 9.2 and 9.2.1 are connected with the expanded PG&C solution:

- ❑ The Commodities base class and class is now named “Part Groups.” The Part Groups class has two out-of-box subclasses, **Commodity** and **Part Family**. This resolves issues created by earlier releases of the PCM and PG&C solutions: if your company has purchased both solutions, these subclasses can be configured to behave the same, or the Commodity (PCM) and Part Family (PG&C) can have different characteristics. See Chapter 6, “Parts and Part Groups.”
- ❑ The Substances base class originally had two subclasses that are now classes: **Materials** and **Substances**. PLM 9.2 added the **Subparts** and **Substance Groups** classes. These four classes help define the Bill of Substances. See Chapter 4, “Substances and the Bill of Substances.”
- ❑ The Declarations base class had a single type of declaration in PLM 9.0 that is now the **Substance Declarations** class.
 - In PLM 9.2, these classes of declarations were added: **Part Declarations**, **Homogeneous Declarations**, **JGPSSI Declarations**, and **Supplier Declarations of Conformance**.
 - In PLM 9.2.1, these classes of declarations are new: **IPC 1752-1** and **IPC 1752-2**.See Chapter 7, “Declarations.”

- ❑ The Items base class – Parts and Documents classes – have been reconfigured for PG&C functionality, adding two new tabs, **Compliance** and **Suppliers**. These new PG&C-specific fields are on the **Title Block** tab: Shippable Item, Exclude from Rollup, Compliance Calculated Date, Part Group, Mass, and Summary Compliance. Also, Overall Compliance attribute (Item > **Manufacturers** tab > **Manufacturer Parts** table) provides the summary compliance state of each manufacturer part on the item. See Chapter 6, “Parts and Part Groups.”
- ❑ The Manufacturer Parts class has been reconfigured for PG&C functionality, adding two new tabs, **Compliance** and **Suppliers**. These new PG&C-specific fields are on the **General Info** tab: Compliance Calculated Date, Part Group, Mass, and Overall Compliance. See Chapter 6, “Parts and Part Groups.”

CHAPTER 2

Exploring PG&C: Classes, Compositions, and the RFI Process

This chapter looks more closely at the components of the Product Governance & Compliance solution. It includes the following sections:

- ❑ *PG&C Business Classes*
 - ❑ *Compositions as Collections of Specific Data*
 - ❑ *RFI Process in Brief*
-

PG&C Business Classes

This is a summary of the Agile business objects used in the Product Governance and Compliance solution. Some of these objects, such as Parts and Manufacturer Parts, originated in other Agile solutions. All of the types of objects introduced here are discussed in succeeding chapters of this manual.

Note It is possible that your Agile administrator has renamed existing classes and created new subclasses than those presented in this guide.

- ❑ **Substances** — A substance is any chemical element or compound that is tracked within Agile PLM. The Substances base class has four classes: Substances, Materials, Subparts, and Substance Groups. The Bill of Substances is developed from these classes.

See Chapter 4, “Substances and the Bill of Substances.”

- ❑ **Specifications** — A specification describes compliance criteria that a product is expected to meet or exceed. A specification can be an internal document issued by your company, a supplier’s own internal specification, or a regulation issued by a government body, such as the European RoHS directive.

See Chapter 5, “Specifications.”

- ❑ **Items and Manufacturer Parts** — These two base classes have always been in the Product Collaboration solution. Parts and Manufacturer Parts are assembled into the products your company sells, therefore, they are the things that must be analyzed for compliance. (How they work outside the PG&C solution is fully documented in *Product Collaboration User Guide*.)

See Chapter 6, “Parts and Part Groups.”

Important In this manual, the word “part” is often used to signify “all objects from the Parts, Documents, and Manufacturer Parts classes.” Therefore, the phrase “parts and part groups” (or the notation <Part/PG>) can be thought of as inclusive of “any kind of part used in my company’s manufacturing process.”

Note Part Family and Commodity are subclasses of the Part Groups class. If your company does not use the Product Cost Management solution, you will not likely see the Commodity object. This manual uses “part group” as the name for objects in the Part Groups class.

- ❑ **Part Groups** — A part group is a “container” that tracks the overall chemical composition for all parts of a particular type. If multiple parts share the same properties – for example, the same composition – you can define a part group with those characteristics.

See Chapter 6, “Parts and Part Groups.”

- ❑ **Declarations** — A declaration is a record of questions posed by a compliance manager to an information supplier about the supplier itself, its products, or how its products comply with given specifications. Upon completion, it contains the supplier’s responses to the questions. A declaration keeps track of all the materials contained in a part, manufacturer part, or part group. As a routable object, it has a workflow that implements the Request for Information (RFI) business process.

The classes of declaration objects for your compliance work are: Substance Declarations, Parts Declarations, Homogeneous Material Declarations, JGPSSI Declarations, Supplier Declarations of Conformance, IPC 1752-1 Declarations, and IPC 1752-2 Declarations.

See Chapter 7, “Declarations.”

- ❑ **Suppliers** — An “information supplier” is a company that provides compliance information about parts that are used in your company’s manufacturing process. The supplier firm may or may not actually make or sell the parts about which they furnish compliance information.

When you create a declaration, you assign it to an information supplier (your Agile administrator has created objects in the database that represent the supplier companies and their individual contacts) who is requested to provide compliance information. The supplier’s people (contact users) access the *PG&C Supplier Guide* to learn to work in Agile Web Client and to complete their end of the compliance process.

Note With PLM Release 9.2.1.3, there has been a relaxing of the original constraints to suppliers on declarations. These are detailed in the **Note** in “Using the Create Wizard” on page 7-11.

See Chapter 9, “Managing Your Suppliers.”

Compositions as Collections of Specific Data

A crucial idea in PG&C is the COMPOSITION; a composition is not a configurable “business object” in Agile PLM. A composition represents the total collection of information contained in a completed declaration.

Contents of a Composition

The information gathered and collected in a declaration is ...

- 1 ... provided by a single **information supplier** ...
- 2 ... in reference to a given **specification** (often called “spec”) and ...
- 3 ... for a given **part, manufacturer part, or part group**.

In the case of an Agile part (not manufacturer part), the **revision**—“rev”—is always significant; this fact is suggested by the phrase “**part+rev**”.

So, a composition is a “part+rev in reference to a spec and provided by a supplier” or a “manufacturer part in reference to a spec and provided by a supplier” — in shorthand, a “part with a spec, from a supplier.”

When a declaration is completed and released, the data it has collected is published or electronically distributed across the product record to the parts themselves and, therefore, to their associated Bills of Material. Through the idea of composition and its carrying agent, the declaration, compliance data is integrated into the product record in visible form as the Bill Of Substances (BOS), just as part data is integrated into the Bill Of Material (BOM).

Note When compositions are directly imported into manufacturer parts, naming a supplier is optional. As of the current release (Rel. 9.2.1.3), even in the context of declaration compositions (compositions that will be published from a released declaration), naming a supplier on the declaration is optional.

Stages of Compositions

The Agile system distinguishes between compositions that are published, are not yet published, or have been overwritten by new published data:

- ❑ **Pending composition** – a composition on an unreleased declaration
- ❑ **Active composition** – a composition from the latest released declaration for that part + spec combination
- ❑ **Inactive or historical composition** – the old composition when it has been replaced by a new declaration

Release 9.2.1 introduces the capability to archive compositions in items and manufacturer parts. See “Inactivating Compositions” on page 6-4.

For more information about compositions, see:

- “Compliance Tab – Compositions in the Context of Parts” on page 6-3, and
- “Compositions in the Context of Declarations” on page 7-2.

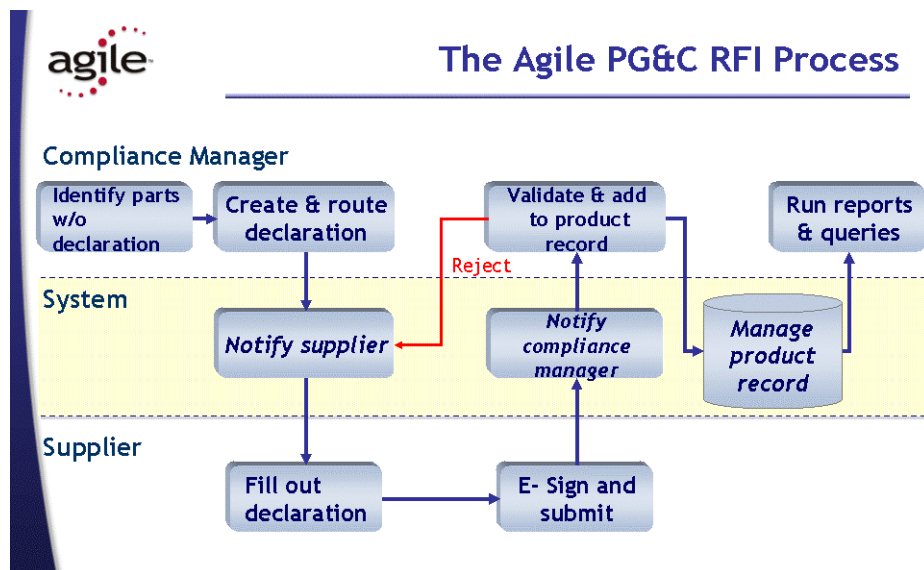
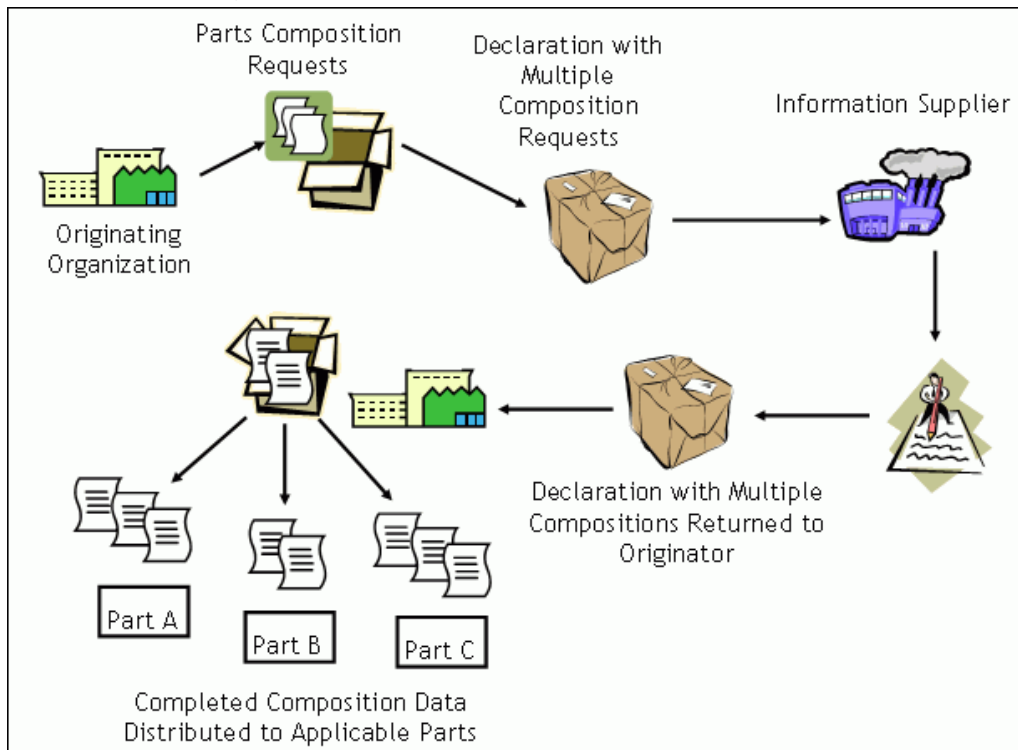
RFI Process in Brief

The declaration workflow is the vehicle to send Requests For Information (RFIs) to your suppliers, one supplier per declaration. A declaration is a routable object used to keep track of the compliance information about all the substances and materials that are contained in parts or part groups associated in the declaration.

The general sequence of the RFI process is:

- 1 Identify parts and part groups for which compliance data is required – see Chapter 6, “Parts and Part Groups.”
- 2 Identify people within your company (for parts) and suppliers (for manufacturer parts) who can provide compliance data. This may be an informal process – collecting names and verifying that internal and external (supplier) users with appropriate roles and privileges are available in the database – or involve more research and creation of an Approved Suppliers List, or ASL. Also, see Chapter 9, “Managing Your Suppliers.”
- 3 Create declarations for parts, manufacturer parts, and part groups – see “Creating Declarations” on page 7-10.
- 4 Route a declaration to an information supplier – details about the Declarations workflow are provided in “Routing Declarations” on page 7-12.
- 5 Supplier completes the declaration with data and a signoff – see “Information Supplier Fills Out a Declaration” on page 7-13.
- 6 Compliance data is assessed for completeness and validated for correctness. This may include running inboard compliance rollups – see Chapter 8, “Rolling Up Compliance Data.”
- 7 Reviewed and approved declarations are released, which “publishes” the data across the product record in Agile PLM – see “Completing the RFI Process” on page 7-13.

The RFI process is depicted in graphic and in schematic views below.



CHAPTER 3

Reports and Searches

This chapter describes the out-of-box reports and searches in the Product Governance & Compliance solution. It includes the following sections:

- ❑ *Using Searches in PG&C*
 - ❑ *Using PG&C Reports*
-

Using Searches in PG&C

Searches are used to identify parts that require compliance data from suppliers, and also to find existing business objects in the Agile database — substances, specifications, declarations, and so forth. Below are the predefined searches for PG&C, and a review of how to use search options when building new objects with associations to existing objects.

Accessing PG&C Saved Searches

To access PG&C saved searches, in the navigation pane, click **Searches** folder and expand **Compliance Searches**. These are the predefined searches available for PG&C.

- ❑ **Custom Parts without Composition in a Top-Level Assembly (TLA)**
 - Shows all items that don't have an AML and that do not have an active composition. If there is a part with a pending composition, this search does not show that part.
- ❑ **Manufacturer Parts without Composition in a Top-Level Assembly**
 - Shows all manufacturer parts that do not have an active composition. If there is a part with a pending composition, this search does not show that part.
- ❑ **Manufacturer Parts for an Item**
 - Shows all manufacturer parts for a given item. So, it is similar to viewing the item's **Manufacturers** tab.

Setting up Advanced Searches is fully documented in *Getting Started with Agile PLM*.

Using the Search Options in Add Operations

In various “create” or “add” operations that are detailed in this manual, when you click the **Add** button, the dialog that opens may have a **Search** button. This is the procedure to decide what route to take to identify objects in the database that you can select in your “add” operation. (Agile searches are fully documented in *Getting Started with Agile PLM*.)

- ❑ **Search** (button and menu choice) opens a dialog with three Search tabs:
 - **Search** tab lets you run a simple search by entering a value in the field and clicking the **Search** button.

Click the **Advanced Search** link to set up an advanced search.

Click the **Search Attachment Contents** checkbox to include attachment files in your search.

When the results of your search are returned, you can select and move objects from the **Results** table to the **Selected** table.

Then click **OK**, and you are returned to the Create wizard, and the objects you selected have been added where appropriate.

- **Saved Searches** tab opens to your navigation pane where you can browse in search folders, select a search, and run it. Again, returned results may be moved to the Selected Items table, and click **OK**.
- **Shortcuts** tab opens to your navigation pane where you can select objects from **My Bookmarks** or **Recently Visited**. The system displays shortcuts to only those objects that are appropriate to the operation you are performing.

Generally you can run multiple searches before completing the wizard step. Also, after the object is created, you can still run multiple searches.

Using PG&C Reports

This section assumes you have read Chapter 6, “Working with Agile Reports,” in *Getting Started with Agile PLM*. That chapter describes report layouts, working inside and outside the wizards, how roles and privileges affect reports, and the report output window.

Agile reports provide you with the information you commonly need to analyze your business processes. You select predefined criteria and specify the results you want. These out-of-box reports are applicable in most situations. You can run them as they are, modify the default layouts, or create your own layouts. As in all solutions, Agile reports are run from Web Client.

Note If your company has upgraded from an earlier version of PG&C, the report output fields (in the layout) may not include all the necessary attributes. Review the layout for each report to ensure that appropriate attributes are included in the report result.

To access PG&C standard reports, in the navigation pane, click **Reports and Analytics** (and expand it if necessary) > expand **Standard Reports** > expand **Compliance Reports**. This folder includes the following predefined reports:

- ☐ BOM Compliance Report
- ☐ Declaration Workflow Metrics Report
- ☐ Missing Substances Report
- ☐ Part Compliance Report
- ☐ Part Groups Compliance Report
- ☐ Parts with Compliance Issues Report
- ☐ Parts with Substance over PPM Report
- ☐ Parts with Substances Report
- ☐ Supplier Compliance Report

To use the Report wizard, you must have the Report privilege. If you are having difficulty, see your administrator.

All the Discovery privileges that are set up for your Agile content will be observed when you run a report with that content, including all rules about warnings set by the administrator.

If you do not have the Discovery privilege for an Agile object, you cannot include that object in a report. Parts for which you do not have the Discovery privilege are displayed in the same way they are displayed on BOMs, that is, you may see the object’s ID as a placeholder, but it is not a live link. Again, if you believe you should be able to see and open either a particular object in the system, or a class of objects, consult your Agile administrator.

Creating the Standard Layout

This is the standard task for starting a wizard in one of the PG&C reports. Until you have run enough reports to decide how to customize the default layouts, it is generally better to create, name, and save specific reports from the default layouts using the wizards.

To create a specific report layout from a default layout:

- 1 In the navigation pane, open **Reports and Analytics > Standard Reports > Compliance Reports**.
- 2 Click the icon  next to the default report you want to use as the basis for your personal report. The Create Report Layout wizard appears. Follow the wizard. When you click **Finish**, the report will run.
You can also double-click the Report Name to open the object, click the **Layout** tab, and then click **Create**. This rest of this task follows that sequence.
- 3 Type a name for the specific report.
- 4 In the **Access** list, select the location for the layout. Your report layout can be Global—available to all—or Personal—available only to you.
- 5 Using the drop-down lists, select the **Paper Size** and **Orientation**.
- 6 If there is a **Layout Type** list, choose a layout type from the list. For example, the Compliance Issues by Supplier report allows you to create layouts for Items or Manufacturer Parts.
Note The **Layout Type** list appears on only a few specific report layouts. If you do not see a **Layout Type** list, ignore this step.
- 7 Select the fields you want in the report.
 - To add values to the **Selected Values** list, select them in the **Available Values** list, and double-click (or click the right arrow button).
 - To remove values from the **Selected Values** list, select them and double-click (or click the left arrow button).
 - To change the order of fields, select a field and use the up arrow or down arrow button to move it.
- 8 If there are multiple headers in the **Available Values** and **Selected Values** lists, select the appropriate values under each header and arrange them in the order you want.
Note Multiple headers do not appear on all standard report layouts. If you see only one header (for example, Main Header Attributes) in the **Selected Values** list, ignore this step.
- 9 When you are finished, click **Save**.

After creating and saving your report, it can be run at any time.

To view or edit an existing report:

- 1 In the navigation pane, open **Reports and Analytics > Standard Reports > Compliance Reports**. Double-click the Report Name of the default report you want to use as the basis for your personal report. The report object opens.
- 2 Click a tab to view. If a tab, such as **Layout** tab, offers multiple reports (default or saved personal reports), you can double-click to view that layout. Or, select the row and click **Edit** to modify that report's layout.

Specifics to Compliance Report Layouts

Use the information below for each PG&C report to populate certain fields when you create your reports.

BOM Compliance Report

This report – the most important in PG&C – gives the user a complete view of compliance throughout a BOM for the given specifications. The report displays the AML of items (that have an AML) as well. The report is launched by the **BOM Compliance Report** button on the **Compliance** tab of an item (not a manufacturer part or part group).

For more information on compliance rollups, see Chapter 8.

After you collect compliance data on custom parts and manufacturer parts, running this report on an assembly helps you identify any items that are not compliant, as well as which manufacturer parts are causing the item to be not compliant. You can run this report on a top-level assembly (TLA), on subassemblies, or on “leaf items” (the last part of a branch in the BOM), against one or more specifications.

Note The BOM Compliance report displays items and manufacturer parts that do not have a specification associated. This ensures that any late-added parts (that is, a part added through a change but not yet associated with a specification because not subjected to a rollup) are at least named in the report.

When running the BOM Compliance report from an item, the item and all specifications in its **Specifications** table are selected to the report automatically. You can optionally choose to run a compliance rollup before generating the report output to get the latest compliance data.

To generate the BOM Compliance report:

- 1 Select one or more items: this requires the user to select one or more items for the report as well as a rev per item. The system should allow a user to select the same item with different revisions.

Items whose Exclude from Rollup attribute is set to Yes, the item and its BOM are not included in the report; however, for those items (same setting), the BOM Compliance report does display the compliance state values. You can prevent compliance state values from being visible by setting Display Excluded Items to No in the report wizard.
- 2 Select one or more specifications.
- 3 Select appropriate values for report input parameters:
 - **Depth:** for BOM levels, select a numerical depth (0–99) from the drop-down list or accept the default **All Levels**.
 - **Display Excluded Items:** choose **No** – allows you to omit any items that do not play a role in compliance – or **Yes**.
 - **Run Compliance Rollup:** choose **Yes** – allows you to request a calculation of compliance prior to generating the report – or **No**.
- 4 Click **Save**. Run the report at any time.

In the BOM Compliance report result, clicking on the link under Item Number takes you to the **Title Block** of the corresponding rev of the item. Clicking on the link under Calculated Compliance value takes you to the **Compliance** tab of the item.

Note If you have exported Excel files from the BOM Compliance report, links (in the Excel file) to items always load the latest released revision of the item, instead of the corresponding revision of the item. The same issue exists with links on compliance attributes.

If a selected specification does not exist in the **Specifications** table of a selected item, the system returns the message “There is no data to display.” In the report result, the warning message about the selected specification not existing in the selected item is displayed.

Declaration Workflow Metrics Report

This report returns metrics for declaration workflows, that is, how long it took for the declaration to advance from one specified status to another.

To generate the Declaration Workflow report:

- 1 Select Workflow Name for the report.
- 2 Select one or more suppliers for the report.
- 3 Select one **Starting** status and one **Ending** status for the report.
- 4 Click **Save**. Run the report at any time.

For example, the Declarations workflow has these two consecutive statuses: Open to Supplier and Submitted to Manager. To find out how long a supplier took to reply to a declaration request, you would select a **Starting** status of Open to Supplier and an **Ending** status of Submitted to Manager.

This report also supports the “non-Web Supplier” as well as previously supported Web Supplier (see Chapter 9).

Missing Substances Report

This report returns active compositions for selected parts for which specified substances are missing. This can be from a single supplier or from multiple suppliers. The report shows a page for each supplier with Missing Substances information. Note that substances with blank values for Declared Compliance, Mass, or Declared PPM attributes from selected specification are considered “missing” – even if the substance exists in the active compositions.

This report also supports the “non-Web Supplier” as well as previously supported Web Supplier (see Chapter 9).

To generate the Missing Substances report:

- 1 Select one or more items or manufacturer parts. See the list of refinements just below this task.
- 2 Select one or more suppliers for the report. If you do not select a supplier, this report runs against all suppliers. (This includes ASL suppliers and non-ASL suppliers that are associated to the active compositions for a selected specification.)
- 3 Select one specification.
- 4 Click **Save**. Run the report at any time.

Refinements to Missing Substances Report

This report looks at the following factors for an item or assembly:

- If the item or assembly has direct active compositions, the report runs against these compositions.
- If the item or assembly do not have direct active compositions, and its AML has direct active compositions, the report runs against these compositions on AML.
- If the assembly and its AML do not have direct active compositions, the system goes through the BOM of the assembly until it finds active compositions on the item or AML, the report runs against these compositions. If the system does not find active compositions in the BOM of the assembly, the system issues a warning message “There is no data to display.”
- If the Exclude from Rollup field on the **Title Block** of the item is Yes, this item is excluded by the system when this report runs. If the Exclude from Rollup field on the **Title Block** of the assembly is Yes, this assembly and its BOM are excluded by the system when this report runs.
- If the selected parts do not have active compositions for selected supplier or specification, all substances in the selected specification are returned as “missing substances.”
- If a substance group exists with a selected specification, but the base substance of the substance group does not exist in the active composition, the base substance is returned as “missing substance.”

Part Compliance Report

This report returns a Result Compliance per specification for selected items or manufacturer parts, based on which layout is used for the report. You can run a compliance rollup before running the report.

To generate the Part Compliance report:

- 1 Layout Type: choose **For Item** or **For Mfr Part**.
- 2 Select one or more items or manufacturer parts.
- 3 Click **Save**. Run the report at any time.

Part Groups Compliance Report

This report returns a Result Compliance per specification for selected part groups. You can run a compliance rollup before running the report.

To generate the Part Groups Compliance report:

- 1 Select one or more part groups for the report.
- 2 Click **Save**. Run the report at any time.

Parts with Compliance Issues Report

This report returns all active compositions (part–specification–supplier) with compliance state (Result Compliance) set to Blank, Not Compliant, or Missing Info. There are layouts available for items and for manufacturer parts.

To generate the Parts with Compliance Issues report:

- 1 Layout Type: choose **For Item** or **For Mfr Part**.
- 2 Click **Save**. Run the report at any time.

Parts with Substance over PPM Report

This report returns all parts that contain the selected substance above the given PPM value, by part or material.

If an active composition containing the selected substance has a Declared PPM value that is higher than the given PPM value, the part associated to the composition is returned.

If an active composition containing the selected substance has the Declared PPM field blank, and Calculated PPM is higher than the given PPM value, the part associated to the composition is returned.

For a part-level specification, in order to get the calculated PPM value of the substance, the Mass value of the part and substance must be present. For a material-level specification, in order to get the calculated PPM value of the substance, the Mass value of the material and substance must be present.

If the selected substance is a substance group, and (only) when the active composition contains the substance group, the part associated to the composition is returned.

If the selected substance is the base substance for a substance group, and (only) when the active composition contains the substance group, the part associated to the composition is returned.

Note Although a part contains the base substance of a substance group, when running this report with a selected substance group, the system does not recognize the part. The substance group and its base substance are treated the same in compliance calculations.

If the selected substance (other than the base substance) exists on the **Substances** tab of a substance group, and (only) when the active composition contains the substance, the part associated to the composition is returned.

To generate the Parts with Substance over PPM report:

- 1 Layout Type: choose **For Item** or **For Mfr Part**.
- 2 Select a substance or substance group – you can select only one substance/substance group for this report.
- 3 Select PPM threshold for the report.
- 4 Click **Save**. Run the report at any time.

Parts with Substances Report

This report returns all parts that contain the selected substances in the active compositions, for items or manufacturer parts.

To generate the Parts with Substances report:

- 1 Layout Type: choose **For Item** or **For Mfr Part**.
- 2 Select one or more substances.
- 3 Click **Save**. Run the report at any time.

Note The Specification attribute may not be displayed in a part's **Compliance** tab > **Substances** table, but if it is enabled, it can result in two identical records in the Parts with Substances report.

Supplier Compliance Report

This report returns all compositions (part–specification–supplier) with compliance state (Result Compliance) for selected suppliers. You can select multiple suppliers for this report. Inactive suppliers cannot be selected. You can run the report, for items or manufacturer parts, against released declarations or non-released declarations. For released declarations, the report looks only at active compositions.

This report also supports the “non-Web Supplier” as well as previously supported Web Supplier (see Chapter 9).

Note The Compliance Issues by Supplier report in Rel. 9.2 was removed from Rel. 9.2.1, and its functionality is now included in the Supplier Compliance Report.

To generate the Supplier Compliance report:

- 1 Select Layout Type from the drop-down list: choose **Default Layout For Item** or **Default Layout For Mfr Part**.
- 2 Select Type: click the radio button for **Against Released Declarations** or **Against Non-Released Declarations**.
- 3 Select one or more suppliers for the report. If you do not select a supplier, this report runs against all suppliers.
- 4 Click **Save**. Run the report at any time.

Substances and the Bill of Substances

This chapter describes how to work with PG&C substances. It also introduces the Bill of Substances. It includes the following sections:

- ❑ *Substances Classes*
 - ❑ *Creating and Working with Substances*
 - ❑ *More About the Substances Business Objects*
 - ❑ *Bill of Substances*
 - ❑ *Summary of BOS Structures*
-

Substances Classes

An object from the Substances class is any element or compound tracked in Agile PLM. The Substances base class has four predefined classes, each with a child subclass:

- ❑ **Substances** class – a substance is a single chemical element; for example, lead, chromium, or cadmium.
- ❑ **Substance Groups** class – a group of multiple substances. A substance group called “Lead and Lead Compounds” would organize several chemicals such as Lead-oxide, Lead-nitrate, and Lead-sulfate. Substance groups have a base substance – in this case lead – which is the substance the legislation is interested in. See more information “About Substance Groups and Conversion Factor” on page 4-3.
- ❑ **Materials** class – a material is a compound chemical, that is, a substance consisting of multiple substances. A good example of a material is a glue or a resin that can be bought in bulk. See more information “About Materials: Intentional and Non-intentional Substances” on page 4-4.
- ❑ **Subparts** class – a subpart is a subunit of a component. Subparts are not numbered and do not expand the BOM. See more information “About Subparts” on page 4-4.

Note Substances are the “subject” of Substances and Weights rollups, which are documented in “Substances and Weights Rollups” on page 8-10 and also in “Internal Logic of Substances and Weights Rollups” on page A-5.

Creating and Working with Substances

When you create most substances, the only required attribute you must specify is Name. The name must be unique. The name is case-insensitive, which means “ARSENIC” is treated the same as “Arsenic”.

Both the Name and Base Substance attributes are required when you create a substance group.

Note Although all characters are supported within Agile PLM, and should not create issues within Agile's clients, it is recommended that you avoid using the following characters when creating objects, particularly substances and substance groups.

, comma . period (dot) : colon ; semicolon = equal sign

Working with Substances

Substances are basic building blocks in PG&C. Tasks that describe how to add them to specifications are provided in Chapter 5. The available **Actions** on a substance object are **Bookmark**, **Subscribe**, **Save As**, **Delete**, **Export**, **Print**, **Send**, and **Sharing**. For more information about objects, tabs, and actions, see Chapter 5, “Working with Objects,” in *Getting Started with Agile PLM*. Common to all objects are **Page Two**, **Attachments**, and **History** tabs. The use of the **Attachments** tab is detailed in Chapter 9, “Working with Attachments,” of *Getting Started*.

General Info

The **General Info** tab provides general information about the substance (or material, subpart, substance group).

There are two important (albeit optional) attributes for substances:

- ❑ **Lifecycle Phase** – When you create a substance, the default lifecycle phase is Active. To make the substance obsolete, change its lifecycle phase to Obsolete.
- ❑ **CAS Number** – Chemical Abstracts Service registry number, which identifies a chemical substance or molecular structure. (Agile does not enforce a unique CAS number, they are a reference tool.) This is especially helpful when there are multiple generic or proprietary names for a substance.

For more information about CAS numbers, see <http://www.cas.org/faq.html>.

Where Used Tab

The **Where Used** tab lists all top-level assemblies (TLA, the products) that contain, somewhere within their BOM, a composition using the particular substance, substance group, subpart, or material. Note that the system displays the latest Released rev and all Pending or previously Released revs of the TLAs that contain the substance.

Where Used tab information is filled in automatically.

Substances Tab in Substance Groups

Since a substance group is an object that collects similarly-based substances, it is natural to have a **Substances** tab that lists them, just like a user group has a **Users** tab that lists its member users.

- ❑ **Conversion Factor** – Default conversion factor is 1. The value can be any non-negative number. For an example of how conversion factors work, see “About Substance Groups and Conversion Factor” on page 4-3.

Composition Tab in Materials and Subparts

The **Composition** tab exists in the Materials and Subparts classes, not in the Substances and Substance Groups classes. However, this tab is disabled (not visible) out-of-the-box, so you may not see it.

The **Composition** tab on a material or subpart object is used to manage the substances that belong to that material or subpart. In the context of materials and subparts, a “composition” is a simple term. The **Composition** tab of materials and subparts is used for “recipe management,” which is keeping track of the intended composition. This data has no impact on the compliance validation process.

Note Simple compositions that are listed in the **Composition** tab of materials and subparts are not the same thing as the aggregate compositions that combine compliance information of part–spec–supplier (introduced on page 2-2).

There are business rules in PG&C relating to the type of substances that can be added to the **Composition** tab. First there is additional information about the substances business objects, then the Bill of Substances is introduced. The rules relating to substances is in “Summary of BOS Structures” on page 4-6.

Creating Substances

To create a substance:

- 1 Choose **Create > Substances** and choose a class from Substances, Subparts, Materials, or Substance Groups. It is possible your administrator has renamed these or created additional substances classes.
- 2 The Create Substances wizard opens. The Type field is filled in. The “Number” field should be filled in with the name of the substance, and the field will convert to “Name” in the next page of the wizard. Click **Continue**.

If you click the **Continue Creation in Wizard** checkbox, you will be able to **Continue** through all aspects of a substance object. If you leave this checkbox blank, you will **Finish** the object creation process, and then you can add to the object by modifying it.

- 3 Enter the general information (Description, CAS Number, and Lifecycle Phase), then click **Next**.

If your PG&C solution has been configured for the JGPSSI class, your administrator has set up a **Page Two** field called Classification Number (**Classification No**) in substances and substance groups, and also a field called Level in substance groups: they are required when you create JGPSSI objects.

Remember that substance groups require a Base Substance to be specified.

- 4 If you want to add attachments to this substance, choose from the **Add** menu Files, URLs, or By Search, and navigate to the desired file or URL. When you are finished adding attachments, click **Finish**.

Note See “Using the Search Options in Add Operations” on page 3-1.

- 5 When your substance is complete, click **Finish**. The new substance appears with the **General Info** tab selected.

More About the Substances Business Objects

This section contains more detailed information about the Substances business objects.

About Substance Groups and Conversion Factor

A substance group relates to a base substance. The base substance must be defined as a substance in Agile. The base substance is stored in the Base Substance field (a list field) that contains a list of all substances in your system.

Substance groups also contain a list of substances that relate to the base substance through a Conversion Factor. Substance groups can only contain substances, not other substance groups. Note that the base substance of a substance group cannot be changed.

The substances that belong to a substance group have a conversion factor that calculates (by weight) the amount of the base substance that is within one of the members of the substance group. For example, 1 gram of lead-oxide contains 0.78 grams of lead. The resulting conversion factor is “0.78”.

Here is another example: let there be a substance group called “Lead-based Compounds,” with a base substance Lead, and with lead-based compounds such as Lead Oxide, Lead Phosphate, and Lead Sulfate (among others). You enter conversion factors for these compounds of 0.866, 0.766, and 0.683, respectively. Now consider that you have a part that contains 1 gram of Lead Oxide, 2 grams of Lead Phosphate, and 3 grams of Lead Sulfate. The system takes these amounts against the conversion factors, and so calculates this equation: $(1 \times 0.866) + (2 \times 0.766) + (3 \times 0.683)$ which yields a total of 4.447 grams of Lead embedded in “Lead-based Compounds” in the part.

Therefore, substance groups calculate the total amount of their base substance, then behave as if they *are* their base substance. Note that the **Substances** table of the substance group cannot be edited once the substance group is used.

Note When you import a substance under a substance group to a declaration without a specification, or import a composition directly into a mfr. part (**Substances** table), if you do not specify the conversion factor for the substance, the conversion factor is copied from the global substance group, assuming the same substance exists there (previously it would leave the conversion factor unpopulated). The system does leave conversion factor blank if it is not entered and the substance does not exist in the global substance group.

The conversion factor is pertinent to substances and weights rollups, which are documented in “Substances and Weights Rollups” on page 8-10 and also in “Internal Logic of Substances and Weights Rollups” on page A-5.

Known Issue with Part Family objects and Conversion Factor

There is a known issue that can occur if parts have been added to a part family that already has compositions published to it *and* if the conversion factor is greater than 1. The problem is that the system can fail to take the conversion factor into account when the mass is copied from part family to associated items or manufacturer parts. If the conversion factor is 1 (or less than 1), which is most frequently the case, there is no issue; but if the conversion factor is, for example, 2 and the part family’s mass is 10 g, the system can copy the associated part’s mass as 10 g when it should be $2 \times 10 \text{ g} = 20 \text{ g}$.

This is mentioned so you will review the data in returned declarations (before publication) to ensure mass of parts is being correctly copied. Manual entry of data may be required. The issue will be resolved in a future release.

If your company uses conversion factors > 1 often, please contact Agile Solutions Delivery as a specific script could be provided.

About Materials: Intentional and Non-intentional Substances

Materials contain two types of substances, *intentional substances* and *non-intentional substances* (contaminations).

Intentional substances are intentionally part of a material. For example, stainless steel contains 9% Nickel. Nickel is an intentional substance in stainless steel that makes it corrosion-free. However, during production of steel, certain contaminations can be introduced as the result of impurities in the base steel or because of the manufacturing process. These contaminations are non-intentional – but they are still part of the final product.

Certain legislations don’t allow for “intentional adding” of certain substances – such as lead – but allow a certain percentage of lead in the product through contaminations, that is, “unintentional adding” of substances. Other legislations add the total amount of a substance – both intentional and non-intentional – and prescribe a maximum threshold value.

Note In the PG&C solution, there is no visible representation of intentional and non-intentional substances. They are implicit in the sense that the **Composition** tab of a material contains the intentional substances, perhaps thought of as the “recipe” of the material. Supplier declarations can contain a mix of intentional and non-intentional substances. Depending on what is requested from the supplier, the supplier declaration can contain only non-intentional substances, only intentional substances, or a mix of both.

About Subparts

A subpart is a subunit of a component manufacturer part. Subparts are not numbered and do not expand the BOM. For example, when your company uses a power supply made by a supplier, a BOM may just list “power supply,” which is sufficient for manufacturing purposes. For compliance purposes, however, you may need information about substances in all the parts of the power supply – the switch, plate, coil, cord, plug, and so forth: for these you or your supplier would create subparts for the supplier to furnish information. There is no limit to the number of subparts in any assembly.

Therefore, a subpart may be thought of as the first level of the Bill of Material of the manufacturer part, that is, the supplier’s BOM.

Bill of Substances

The Bill Of Substances (BOS) is a way to manage compliance information-gathering with regard to the parts and materials used in the manufacturing process. To understand the BOS and how it is “derived” from the BOM in Agile PLM, let’s first look at what a Bill Of Material is.

The BOM is a List of Parts that become Products

The Bill Of Material (BOM) is the list of all parts and subassemblies that are assembled into the manufactured product. The BOM is central in Agile PLM’s Product Collaboration solution, and it is fully documented in *Product Collaboration User Guide*.

This is a simple list of BOM levels from the top-level assembly down.

Levels of the BOM

- ❑ First or top level: Top-Level Assembly (TLA), the ultimate product being manufactured
- ❑ Second level: Assemblies and sub-assemblies
- ❑ Third level: Items (parts and documents; these are manufactured at your company)
- ❑ Fourth level: Manufacturer Parts (these are parts from companies on the Approved Manufacturer List, or AML)
- ❑ Fifth level: Supplier (companies that furnish parts and/or information, from the Approved Supplier List, or ASL)

Now, understand that the BOM and the BOS list different kinds of entities, so the “levels” in the preceding list and the list below do not correspond with each other; the important thing is that each list is organized as a hierarchy. However, it should also be noted that anything on the first four levels of a BOM – any kind of part or assembly – can be the origin of a Bill Of Substances. (The Supplier level of the BOM is simply used by PG&C to identify potential suppliers to request a declaration from.)

The BOS is a List of Substances Contained in Parts, which Requires Compliance

The Bill Of Substances is a hierarchical list of substances that are contained in the parts and assemblies that make up a BOM. This is a list of BOS hierarchical levels from any composition of a part or part group or subassembly or TLA:

Levels of the BOS

- ❑ First or top level: the Composition of a part or assembly
- ❑ Second level: Subpart
- ❑ Third level: Homogeneous Material
- ❑ Fourth level: Substance Group
- ❑ Fifth level: Substance

You may recognize the 2nd–5th levels are the Substances classes. This order of this hierarchy is particularly important in compliance rollups (Chapter 8). Note that the top level of a BOS is the *composition* (introduced on page 2-2). While the purpose of the BOM is to assemble parts into a sensible sequence so that the product works, the purpose of the BOS is to assemble data about substances contained in products so that the substances can be analyzed and evaluated and your company’s products can be in compliance. An example follows.

Rationale for the BOS

Depending on the type of specification with which you need to be compliant, you will need more or less information from your suppliers. For example, the RoHS legislation wants parts to be compliant at the homogeneous material level. This means that you might require your component manufacturer to specify how much lead it contains per homogeneous material within the component.

Unfortunately the sub-units (subparts) of a component (say, the packaging around a chip) are not always homogeneous, but they may consist of a coated material. For the RoHS legislation, this means that such a subpart consists of two homogeneous materials, each of which has to be compliant.

This creates a tree structure called the Bill of Substances. Suppliers can be required to provide information at each of the levels of the BOS.

Depending on the type of specification involved, levels in the above list may be omitted.

Summary of BOS Structures

The rules relating to the type of substances that can be added to the **Composition** tab are:

- 1 A subpart can contain a material and a subpart at the same level. A subpart cannot contain all four types of substances at the same time.
- 2 A material can contain only substances and substance groups. A material cannot contain a subpart or a material.

Here are the valid structures of the Substances classes:

For Subparts:

Subpart > Substances AND/OR

Subpart > Substance Groups AND/OR

Subpart > Substance Groups >Substances

OR

Subpart > Homogeneous Materials AND/OR

Subpart > Subpart AND/OR

Subpart > Subpart > Homogeneous Material

For Homogeneous Materials:

Homogeneous Material > Substances AND/OR

Homogeneous Material > Substance Groups AND/OR

Homogeneous Material > Substance Groups >Substances

CHAPTER 5

Specifications

This chapter describes how to work with PG&C specifications. It includes the following sections:

- ❑ *Overview of Specifications*
 - ❑ *Creating and Working with Specifications*
 - ❑ *“All Spec” Use Case*
-

Overview of Specifications

Specifications track the different legislations, customer specifications, or internal specifications with which an assembly or part must comply. One type of specifications are environmental (substance-based) specifications. Such environmental specifications contain a list of banned substances or substances of concern and their threshold values.

Specifications are used to validate declarations and assess the compliance of parts by evaluating whether a given restricted substance in the composition of a part surpasses its specified threshold value. The Specifications object is used to create representations of specification documents, regulations, published compliance criteria. You will very likely hold the actual (electronic) document as an attachment to a specification object.

Contents of Specifications

Objects created from the Specifications class consist of:

- ❑ Specification-level attributes
- ❑ (optional) Attachments clarifying the specification
- ❑ (optional) A list of substances of concern (or, simply, substance list)
- ❑ (optional) Threshold value (PPM) for each of the substances of concern
- ❑ (optional) Indication on whether a supplier is required to report on a substance or not.

A specification either represents a customer-created specification or legislation adopted by a government.

Creating and Working with Specifications

The available **Actions** on a specification object are **Bookmark, Subscribe, Save As, Delete, Export, Print, Send, and Sharing**. Note that, once the specification is used, specifications cannot be deleted nor can the **Substances** table be edited.

For more information about objects, tabs, and actions, see Chapter 5, “Working with Objects,” in *Getting Started with Agile PLM*. Common to all objects are **Page Two, Attachments, and History** tabs. The use of the **Attachments** tab is detailed in Chapter 9, “Working with Attachments,” of *Getting Started*.

General Info

The **General Info** tab provides general information about this object. Name, Description, Jurisdiction, Lifecycle Phase, and specification Type were entered when the specification was created. You can edit this information by clicking the **Edit** button in the **General Info** tab.

- ❑ **Validation Type** – drop-down field, choose Part Level or Homogeneous Material Level. This field is required, but the field is populated with the default Part Level in the Create wizard. Note that once the specification is created, its Validation Type cannot be changed.
 - **Part Level** – enforces simple BOS, e.g., weight of part to validate PPM; compliance with this type of specification has to be validated at the part level; or
 - **Homogeneous Material Level** – enforces BOS that is more complex; compliance with this type of specification has to be validated at the homogeneous material level

When a specification is added to a part or declaration, this field is useful in tracking whether the part (or all the parts contained in the declaration) should be compliant at the part level or at the homogeneous material level.

Also, when importing compositions into manufacturer parts, the mfr. part’s Composition Type and the specification’s Validation Type must match.

For more information about this attribute, see “Validation Type in Conjunction with Composition Type” on page 5-5 and “Importing Compositions into Manufacturer Parts” on page 6-8.

- ❑ **Exemptions** – a multi-list field derived from the Exemptions list (set up by the administrator). When you create a specification, you populate the Exemptions attribute by selecting substances of concern for that specification’s regulatory agency from the master list (which was created by the administrator).

When a specification is associated with a declaration, exemptions named in the spec “read through” to the declaration’s Exemptions fields. Exemptions in declarations are discussed in “Affected Part Tabs” on page 7-6.

Note The system currently allows you to remove exemptions from a specification if the exemption has been assigned to a declaration, part, manufacturer part, or part group; in the future this will not be allowed.

Substances Tab

You can edit, remove, or add substances and substance groups to the **Substances** tab of a specification (not materials or subparts). You cannot add both a substance group and its base substance to the specification’s **Substances** tab. When adding a substance group, the threshold PPM value is given at the substance group level.

The **Substances** table of a specification is important to PG&C because it identifies which substances are restricted and their threshold mass PPM. The “threshold mass PPM” determines the maximum quantity in parts-per-million of a substance allowed in order to be within compliance. During compliance rollups (Chapter 8), the system marks a substance as Compliant if the declared or calculated PPM is less than or equal to the threshold PPM.

Note When the specification is being used (in a part or part group or in a declaration), the **Substances** tab in the specification cannot be edited (including add / remove). If the spec is removed from part **Specifications** table or from declaration **Specifications** table, the **Substances** tab on the specification reverts to being editable.

- ❑ **Reporting** – Mandatory or Optional: if set to Mandatory, where this specification is on a declaration, that is a message to the supplier that they must report compliance information for that substance. If it is set to Optional, the supplier does not need to provide data for that substance, and the system will not check that substance for compliance. The rollup logic considers only “mandatory” substances, and the compliance states of only “mandatory” substances are rolled up to the part.

Even though a supplier is expected to provide information for substances marked Mandatory, currently the system does not enforce the rule.

Creating Specifications

The only required attribute that you must specify when you create a specification is **General Info.Name**. The name must be unique. The name is case-insensitive, which means “ROHS” is treated the same as “Rohs”.

An optional attribute is **General Info.Lifecycle Phase**. When you create a specification, the default lifecycle phase is Active. To make the specification obsolete, change the value of its lifecycle phase attribute to Inactive.

To create a specification:

- 1 Choose **Create > Specification**. The Create Specifications wizard appears.

The Type field should already read Specification. If the administrator has created additional subclasses of specifications, these are available in the drop-down list.

- 2 In the Number field, enter a name for the specification. Click **Continue**.

If you click the **Continue Creation in Wizard** checkbox, you will be able to **Continue** through all aspects of a specification object. If you leave this checkbox blank, you will **Finish** the object creation process, and then you can add to the object by modifying it.

- 3 On the Enter General Information page, enter a Description of the new specification.

In the Jurisdictions field, use  to select appropriate locations where this specification is valid.

In the Exemptions field, use  to select appropriate exemptions.

Note As mentioned above, when a specification is associated with a declaration, exemptions named in the spec “read through” to the declaration’s Exemptions fields. It is a best practice to be familiar with the use of exemptions in specifications and how they work in declarations. Exemptions in declarations are discussed in “Affected Part Tabs” on page 7-6.

In the Lifecycle Phase field, use the drop-down list to select **Active**.

In the Validation Type field, use the drop-down list to select **Part Level** or **Homogeneous Material Level**.

- 4 When finished with these fields, click **Next**. The Add Substances page appears.

At any point you can click **Finish**, which will close the wizard, and you can add to the object by modifying it.

- 5 To add substances to the specification, click the **Add** button. Use the drop-down arrow to select **Search** to add existing substances or **Create New** to create a new substance object that will be added to the specification.

Note See “Using the Search Options in Add Operations” on page 3-1.

- 6 When you want to add substances in the Selected table, click **OK**. You may run additional searches after this, too.

If the **Edit rows after adding** checkbox is not checked, the substances are added. If you click the **Edit rows after adding** checkbox, you have the opportunity to modify each substance in the Reporting field (Mandatory or Optional) or Threshold Mass PPM field. Click **Save** when you are done.

When you are finished adding substances to the specification, click **Next**. The Add Attachments page appears.

- 7 If you want to add attachments, choose from the **Add** menu Files, URLs, or By Search, and navigate to the desired file or URL. When you are finished adding attachments, click **Finish**.

Note Best practices dictate that a copy of the legislation that covers the substances (in a format such as an Adobe PDF) should be added to the **Attachments** tab.

8 When your specification is complete, click **Finish**. The new specification appears with the **General Info** tab selected.

Working with Specifications

These tasks describe how to add, edit, and remove substances and substance groups on a specification. (Be sure to read the Note in “Substances Tab” on page 5-2.)

To add an existing substance or substance group to the Substances tab of a specification:

- 1 Open a specification, click the **Substances** tab.
- 2 Click the **Add** drop-down button and select **Search**. The Add Substance wizard opens in a separate window.

Note See “Using the Search Options in Add Operations” on page 3-1.

- 3 From the returned rows, select and move one or more substances that you want to add to the **Selected** list.
- 4 Click **OK**, then click **Save**. The selected substances are added to the specification.

To add a new substance or substance group to the Substances tab of a specification:

- 1 Open a specification, click the **Substances** tab.
- 2 Click the **Add** drop-down button and select **Create New**. The New wizard opens in a separate window.
- 3 Choose **Type** of substance object to create (Substance or Substance Group), fill in a name for the new substance, then click **OK**.
- 4 Follow the wizard, referring to the “create” task in previous section. When you are done, click **Finish**.

To edit a substance or substance group on the Substances tab of a specification:

- 1 Open a specification, click the **Substances** tab.
- 2 Select the substance you want to edit, then click **Edit**.
- 3 Make the desired changes to the substance, then click **Save**.

To remove a substance or substance group from the Substances tab of a specification:

- 1 Open a specification, click the **Substances** tab.
- 2 Select the substance you want to remove, then click **Remove**.
- 3 Click **OK** on the prompt to complete the removal or **Cancel** to cancel the removal.

“All Spec” Use Case

There is a special situation regarding declarations with no associated specifications, called the “All Spec” (All Specification) use case. Basically, if you intend to collect raw data (mass or PPM) at a substance level, create a declaration with no specification attached. The supplier must provide information on all materials and substances. You then use the information to calculate compliance in relation to any specification.

Let’s describe the usefulness of the All Spec by starting with the normal use case: when there is a specification in the declaration, the information that the supplier provides is attached to that specification and cannot be used to assess compliance of other specifications using the data that the supplier provided.

For example, a supplier receives a declaration with Part 101 and the RoHS specification. The supplier responds to this declaration at the part level using the Declared Compliance field in the declaration's <parts/PG> tables. Regardless what the supplier declares (compliant or non-compliant), that information is associated to the RoHS specification, and we cannot use this information to assess compliance of other specifications.

On the other hand, if the supplier provides either the Mass or PPM values at the substance level, the system calculates the compliance and determines whether Part 101 is compliant for RoHS or not.

The difference between these two cases is that, in the second case, even though the supplier provided the raw data (Mass, PPM) at the substance level, since the declaration had a specification (RoHS), all the information from the supplier is associated with the RoHS spec. If the user adds a different specification to Part A, let's say the WEEE specification, the system is not able to re-use the Mass or PPM information to calculate compliance against WEEE because all that information is associated with RoHS specification.

Therefore, if the buyer intends to collect raw data (Mass or PPM) information at the substance level, they should attach no specification to the declaration. The supplier then provides information on all materials and substances in Part 101 with either Mass or PPM information. The buyer can use this information to calculate compliance of any specification. This is what is referred to as the All Spec case.

Validation Type in Conjunction with Composition Type

Release 9.2.1 adds another wrinkle to this with the introduction of importing compositions to manufacturer parts. A relationship exists between a **specification's Validation Type** – Part Level or Homogeneous Material Level – and a **manufacturer part's Composition Type** – Part Composition, Substance Composition, or Homogeneous Material Composition.

Validation type was introduced in "General Info" on page 5-2; Composition Type is documented in Table 6-1 on page 6-9; this section points out the interaction of these two attributes.

The Composition Type attribute of a manufacturer part provides a way to track what type of composition is being imported to manufacturer parts.

Substance Declarations of Conformance do not apply to the Composition Type attribute.

- ❑ For compositions published from declarations, the system selects the correct composition type based on the Declaration class (as shown in Table 6-1).
- ❑ When the system assesses compliance for a specification, it looks for all matching specification compositions that correspond to the validation type of the specification. (This is different than Rel. 9.2, in which the system was confined to looking at compositions based only on the specification's Validation Type setting.)

So, for a Part Level validation specification, the system looks at all Substance compositions and Part Compositions, therefore, it looks for compositions with same spec that are published from Substance Declarations, JGPSSI Declarations, IPC 1752-1 Declarations. *OR* Part Declarations.

For a Homogeneous Material Level validation specification, the system looks at all Homogeneous Material compositions and Part Compositions; therefore, it looks for compositions with same spec that are published from Homogeneous Material Declarations, IPC 1752-2 Declarations, *OR* Part Declarations.

(In PLM 9.2, a problem existed where, if there was a part level specification with no matching composition, the system was only considering the All Spec substance composition published from Substance Declarations; even though JGPSSI Declarations also published substance compositions, they weren't considered; this issue was fixed.)

For a given specification, if there is a composition published that has the same specification, the system uses that composition only. If multiple suppliers have provided compositions for that spec, then the system uses compositions from all the suppliers and applies the Composition Rollup Rule to determine the compliance of that specification.

For a given specification, when there is no composition with the same spec, the system looks for all specification compositions from all suppliers that correspond to the same validation level of the specification. For example, with a part level specification, when there is no composition found with that spec, the system uses all active “All Spec” compositions published from Substance, JGPSSI, or IPC1752-1 declarations *OR* directly imported substance compositions without any spec.

Note that a part composition without a spec is not considered to be an “All Spec” composition, since it contains no substance-level information and is therefore not useful.

CHAPTER 6

Parts and Part Groups

This chapter describes how to work with PG&C part groups. It includes the following sections:

- ❑ *Overview of Parts and Part Groups*
 - ❑ *Working with Parts and Part Groups*
 - ❑ *Creating Part Groups in PG&C*
 - ❑ *Importing Compositions into Manufacturer Parts*
 - ❑ *More about Parts and Part Groups*
-

Overview of Parts and Part Groups

Items and **Manufacturer Parts** are two base classes in Agile PLM that are used to create objects that represent the things your company and its suppliers assemble into the products your company sells. They are therefore the things whose compliance data must be sought.

How items – parts or documents – and manufacturer parts work “outside” the PG&C solution is fully documented in *Product Collaboration User Guide*. Non-PG&C tabs and functionality of items and manufacturer parts are not included in this guide. How items and manufacturer parts are used within PG&C is described in this and the next chapter of this guide.

Important In this manual, the word “part” is used to mean all objects from the Parts, Documents, and Manufacturer Parts classes. Since a Part Group simply groups existing parts, the phrase “parts and part groups” can be thought of as inclusive of “any kind of part used in my company’s manufacturing process.”

In some cases, the same collection of objects are implied by “part/PG”.

Recently added PG&C-related tabs on items and manufacturer parts, as well as part groups, are the **Compliance** tab and the **Suppliers** tab. These tabs work the same way in all these objects. Tasks involving parts are included with part groups in this chapter; additional tasks involving parts are found in the next chapter on Declarations.

Overview of the Part Group Class

A part group is a container of items or manufacturer parts that share certain characteristics. In effect, it simply groups material information and supplier information. The parts that are associated with part groups are listed on the **Parts** tab of every part group.

Note Even though the PG&C-related object is “part family,” the administrator may have renamed the subclass or even created a new class in Part Groups base class. Therefore, we use “part group” in this manual when referring to objects from the Part Groups class.

If a part is already associated with a part group, it cannot be associated with a different part group. A part can only belong to one part group at a time.

A part group tracks the overall chemical composition for all parts of a particular type. If multiple parts share the same properties – for example, the same composition – you can define a part group with those properties. Once a part group is created and defined, all new parts you add to that part group inherit those characteristics.

Note, however, that suppliers on a part group are not copied over to the associated parts; said another way, parts do not inherit suppliers from part groups.

The Part Groups class is licensed by Agile through the Product Collaboration solution, but its specific objects pertain more to Product Cost Management, or PCM, and PG&C. (It was called Commodities class in Agile PLM 9.0.) The Part Family subclass is used by PG&C; the Commodity subclass is used by PCM. Depending on settings (see “Make Available As Attribute and the “Force/Identical” SmartRule” on page 6-7), this class can generate objects that work independently in PG&C and PCM, or concurrently in both solutions.

Working with Parts and Part Groups

There are many similarities between parts – items or manufacturer parts – and part groups.

The following tabs are on all of these objects:

- ❑ **Title Block and General Info** – The “Page One” that provides general information about the part group or manufacturer part; it is called **Title Block** on items.
- ❑ **Compliance** tab (and Compositions) – The **Compliance** tab holds a **Specifications** table, listing the specifications that are associated with the part or part group, and a **Compositions** table, listing the compositions on the part or part group. There is also a **View Substances** link. For these reasons, this tab is at the core of PG&C compliance data-gathering.
- ❑ **Suppliers Tab** – Lists the suppliers who carry this part or part group.

The following tabs are not on all of these objects:

- ❑ **Parts Tab** – Only on part groups (or commodities), this lists the parts that are associated with the part group. Note that the **Parts** tab on a part group fills the same role as the **Substances** tab on substance groups or the **Users** tab on user groups.
- ❑ **Where Used Tab** – Only on items and manufacturer parts (because part groups have the **Parts** tab, where you can click on any part and, when it is opened, go to its **Where Used** list).

The available **Actions** on items and part groups are **Bookmark**, **Subscribe**, **Save As**, **Delete**, **Export**, **Print**, **Send**, **Sharing**, and **Create Declaration**. Note that, once a part group is associated with a part/PG, it cannot be deleted. The **Create Declaration** Action is disabled when a part or manufacturer part is associated with a part group. Also on items (only), the **Rollup in Excel** action invokes a substance and weight rollup. See “Substances and Weights Rollups” on page 8-10.

Note When you perform a “Save As” operation of a part or part group, compositions are not copied to the new object; the system copies the specifications over to the new object, but not the Active compositions. Suppliers on the original object are copied to the new object in a “Save As” of a part or part group.

For more information about objects, tabs, and actions, see Chapter 5, “Working with Objects,” in *Getting Started with Agile PLM*. Common to all objects are **Page Two**, **Attachments**, and **History** tabs. The use of the **Attachments** tab is detailed in Chapter 9, “Working with Attachments,” of *Getting Started*.

For information about associating substances with an item, manufacturer part, or part group *on a declaration*, see “Working with Declarations” on page 7-5.

Title Block and General Info

The **General Info** tab (**Title Block** on items) provides general information about this part or part group, including Name, Description, Part Group Type, Lifecycle Phase, Mass, and Make Available As setting (if enabled). Changes you make to the weight information (Mass) on a part group’s **General Info** tab is “read-through” to parts and manufacturer parts associated with the part group.

The following fields appear on the **Title Block** of items only:

- ❑ **Shippable Item** – Yes or No: when an item is ready to go to market (presumably a top-level assembly), setting this field to Yes sets a “flag” that the system looks for in the scheduled rollups. (See Chapter 8.)
- ❑ **Exclude from Rollup** – Yes or No: setting to No means that the item will always be included in compliance rollups. There can be items, for example, a document, whose compliance you are not concerned about, set to Yes.

The following fields appear on the **Title Block** of items, manufacturer parts, and part groups:

- ❑ **Compliance Calculated Date** – date and time stamp when the last rollup (scheduled or manual) was run
- ❑ **Overall Compliance** – indicates worst state of the part with any of the specifications it has to be compliant with.
- ❑ **Part Family and Commodity** – On an item, the Part Family and Commodity attributes on the **Title Block** indicate which part group the part is associated with. Either of these attributes can be enabled, and both are editable. Both Commodity and Part Family attributes can be edited from an item’s **Title Block**.

On a manufacturer part, only the Part Family attribute is available. The Part Family attribute can be edited from a manufacturer part’s **General Info** page.

When you assign a part group to a part, the part is added to the part group’s **Parts** table, and the **General Info** mass, specifications, active compositions, and corresponding substances are copied over to the part. In order to assign a different part group, you must remove the current value on Part Family attribute, save the changes, and then associate it with a new part group.

There is another General Info field on part groups, the Make Available As field, that plays a part in these settings. See “Make Available As Attribute and the “Force/Identical” SmartRule” on page 6-7. There is more information about the **Parts** tab of part groups in “Parts Tab” on page 6-5.

Page Two and Page Three Tabs: Mapping Feature in Parts and Part Groups

Mapping of attributes is useful for some **Page Two/Page Three** attributes in parts and part groups. Mapping lets you see some values from the **Compliance** tab > **Compositions** table attributes, that is, it distributes changed values on published declarations that are associated with those parts. The administrator may have mapped fields within parts. For example, the administrator has enabled and mapped

Declaration > **Items** > Part (link) > **PageTwo** > **Date05**

to

Part > **Compliance** tab > **Composition** > **Date02**,

when you edit this attribute, the new value is published back to

Part > **Page Two** > **Date05**.

Now let us say the supplier alters the **Date02** field while completing the declaration. When the declaration is returned, released, and the data is published to the system, this new value automatically carries over to

Part > **Page Two** > **Date05**.

Note that the mapping works two ways: when adding this item to the declaration, the system pulls the value from the item’s **Page Two / Page Three** into the declaration’s <**Parts/PF**> table onto the mapped attribute.

When multiple declarations regarding the same part are sent to different suppliers, the rule in Agile is “Latest Released Wins.” This means that the value of a mapped attribute can change if later declarations dictate it.

Compliance Tab – Compositions in the Context of Parts

The **Compliance** tab reflects changes to the composition of the part or part group. Changes to this data are generally collected using declarations – but see “Modifying the Compositions Table” below.

Tables on the Compliance Tab

The **Compliance** tab has a **Specifications** table. You can add or remove specifications to the **Specifications** table on the **Compliance** tab.

- ❑ **Exemptions** – This field can be set by the user (roles and privileges permitting) if the user determines that the part is exempt for this specification.

The **Compliance** tab also has a **Compositions** table, which lists specification–supplier combinations that are associated with the part or part group. The **Composition** substances table has a **View Substances** link, which brings up a pop-up window with all the substances that correspond to a composition. The **View Substances** Link appears only if the user has Read privilege for the Composition Type attribute.

Modifying the Compositions Table

For items and part groups, you cannot add compositions to the part/PG **Compliance** tab > **Compositions** table manually, that is, by working in the tab: to do this, you must create and send a declaration. Now, for manufacturer parts, you can directly import composition and substance data into manufacturer parts. (A future release will include the ability to import compositions into items and part groups.) See “Importing Compositions into Manufacturer Parts” on page 6-8.

Regarding modifying or removing compositions, when a composition with same supplier + same spec is released or imported, the previous composition is inactivated, but not deleted. There is no way to edit a composition: if you make some changes to the same Import file and import again, the system treats it as a new composition and archives the previous one. (See “Inactivating Compositions” below.)

You can publish a composition from a declaration that does not have a specification, which results in the “All Spec” composition (discussed on page 5-4); it is now possible to publish a declaration with no supplier named at all (this is detailed in “Cover Page” on page 7-5).

When importing a composition into a manufacturer part, both specification and supplier are optional (Composition Type is required; see “Role of Composition Type Field” on page 6-9).

When the specifications of a part group are modified or new declarations are made against this part group – for example, a supplier submits a declaration that includes information about the part group – then upon release of that declaration, the composition relating to that part group will not only be copied to the **Compliance** tab > **Compositions** table of that part group, but also to all parts belonging to that part group, while applying the conversion factor to convert part and substance weights, if applicable.

Inactivating Compositions

With Release 9.2.1, an **Archive** button can be found on the **Compliance** tab’s **Specifications** table of items and manufacturer parts (but not part groups). This button is enabled, however, only if the user has the Modify privilege for the Declared Compliance attribute on the **Specifications** table for that part.

This is the use case for the **Archive** button: suppose you have inquired about a substance in a part from multiple suppliers. You submit declarations, and they are returned, some reporting the part–substance to be in compliance and some reporting non-compliance. When these declarations are published, the top-level assembly at your firm could emerge with a Non-Compliant state.

Assuming you can decide not to buy non-compliant parts, you can remove offending compositions from the product record: on the part’s **Compliance** tab > **Compositions** table, select the composition you want to remove and click the **Archive** button. The composition is removed from active status. Any assemblies that part is on should now be in compliance (or at least not prevented).

An inactivated composition cannot be re-activated.

Suppliers Tab

The **Suppliers** tab enables you to add, edit, or remove suppliers on a part or part group. Parts can be tracked with regard to their approved suppliers.

If there are suppliers associated with a part or part group, when creating a declaration from a part or part group **Actions** menu, the suppliers from **Suppliers** tab of the part or part group will be displayed in a drop-down list for convenience. You may select any one of these suppliers or search for and select another supplier in the system.

To add a supplier to a part or part group:

- 1 Open a part or part group, click the **Suppliers** tab.
- 2 Click the **Add** button. The Add Suppliers wizard opens in a separate window. From the returned rows, select and move a supplier or multiple suppliers that you want to add to the **Selected** list.
- 3 Click **OK**, then click **Save**. The selected suppliers are added to the part group.

To edit a supplier on a part or part group:

- 1 Open a part or part group, click the **Suppliers** tab.
- 2 Select the suppliers you want to edit, then click the **Edit** button.
- 3 Make the desired changes to the suppliers, then click **Save**.

To remove a supplier from a part or part group:

- 1 Open a part or part group, click the **Suppliers** tab.
- 2 Select the suppliers you want to remove, then click the **Remove** button.
- 3 Click **OK** on the prompt to complete the removal or **Cancel** to cancel the removal.

Parts Tab

A part group's **Parts** tab lists all parts and manufacturer parts that have been associated with it. This association between part groups and parts is important because it determines which parts a supplier will be asked to declare when an RFI is disseminated by declaration.

Whenever something changes on a part group's composition through the declaration process, all parts and manufacturer parts on the **Parts** tab of the part group are also impacted.

You cannot add substances to a part group's **Parts** tab, you can add only parts and manufacturer parts. (If your company is set up for "Commodity-only" objects, you can add only parts, not manufacturer parts. "Commodity-only" objects can have only parts on the **Parts** tab. These and other business rules are detailed in "Make Available As Attribute and the "Force/Identical" SmartRule" on page 6-7.)

- ❑ **Conversion Factor** – The items and manufacturer parts belonging to a part group have a conversion factor that is used to convert data such as Mass and Substances Content from the part group to its member parts.

For example, let a part group describe a series of cable, made of the same materials but available from the supplier or suppliers in a variety of lengths. The part group contains compliance information that defines the "unit" length of cable to be 2 feet long. The part group then groups cables of 2 ft, 6 ft, and 10 ft in length. The 2-ft cable has a conversion factor of 1 in terms of its mass and hazardous substances content. The 6-ft cable has a conversion factor of 3. The 10-ft cable has a conversion factor of 5.

To add a part to a part group:

- 1 Open the part group you want to work with, and click the **Parts** tab.
- 2 Click **Add**. The Add Contents wizard opens in a separate window. From the returned rows, select and move a part or multiple parts that you want to add to the **Selected** list.
- 3 Click **OK**, then click **Save**. The selected parts are added to the part group.

To edit a part (item or manufacturer part) on a part group:

- 1 Open the part group you want to work with, and click the **Parts** tab.
- 2 Select the part that you want to edit, then click the **Edit** button.
- 3 Make the desired changes to the part, then click **Save**.

To remove a part from a part group:

- 1 Open the part group you want to work with, and click the **Parts** tab.
- 2 Select the part or manufacturer part you want to remove, then click the **Remove** button.
- 3 Click **OK** on the prompt to complete the removal or **Cancel** to cancel the removal.

Note When a part is removed from part group **Parts** table, only the *association* itself is removed. The mass, specifications, compositions, and corresponding substances that were copied from the part group remain in the part. (Of course, future changes to the part group are not propagated.)

Importing Specifications to Specific Revisions of Items

Agile PG&C now supports the integrity of item revisions when importing (associating) a specification to the item.

- When you add a specification to an item, either manually (through the user interface) or with Agile Import, it applies only to the specific revision to which it is added. Previously, when a spec was added to a particular rev, it was actually associated with all the revs of the item. Now, when you import a spec to item Rev. A, the spec applies only to Rev. A. You can import the spec only to Introductory and Pending revs of the item.
- The same is true in the case of removing a specification from an item (manually): when you remove a spec from an item, it is only removed from the specific rev, not from all the revisions.

When the compliance manager publishes a declaration, at that time the system not only copies composition from the declaration to all associated items, it also takes the specs in the declaration and adds them to the **Specifications** table on the items. Previously, when the declaration was released, specifications would be added to all revisions of the item; now, it is added only to the rev of the item that was named in the declaration. (Below is a wrinkle, a difference concerning items on Part Groups.)

Note that PG&C does not support using Agile Import of specifications into Released revs (previously released or latest released) of the item because Import prevents changes to any released revision. Specifications can still be added to all the revisions of the item from the user interface (that is, manually). (This inconsistency is being addressed for Release 9.2.2.)

When you create a new change order on an item (that is, initiate a new rev), the system copies over only those specs and compositions from the previous latest released rev to the new rev (that is, to the new change order).

When you create a new item by performing a SaveAs on an existing item, only specifications on the specific, named rev of the existing item will be copied to the new item.

A Difference with Part Groups

There is a difference in behavior between part groups and items: when you add an item to a part group, the system adds the specifications and active composition in the PG to all Pending revs and Latest Released rev of the item. In distinction, when you publish a declaration, PG&C publishes only to the rev of the item that was added; so, if you added Rev A of an item to a declaration and then released that rev, the spec and composition will only go to Rev. A. Even if you have created Revisions C, D, and E, the system does not copy composition to these revs.

The reason for this distinction is because the work objectives of Change Managers and Compliance Managers may differ. The Change Mgr. may continue to create new changes for revisions to parts; whereas, if the Compliance Mgr. gets Rev. A and sends it to an information supplier in a declaration, when it comes back from the supplier and is released, it makes sense that the composition only applies to Rev. A, because that is what the supplier declared to.

So this is something to be known about part groups: when a declaration is released, the composition goes to the particular rev of the item that was added, whereas if you add an item to a part group, at that time the system copies the compositions and the spec from the PG into all Pending and Latest Released revs of the item. This behavior applies to part groups but not items or manufacturer parts.

Creating Part Groups in PG&C

Part Groups let users categorize parts for compliance and sourcing processes, and collect information on restricted substances for part groups.

Part Groups can be associated with items – parts and documents – and manufacturer parts. A part group is a way of grouping similar types of parts. By associating each part with a part group, your users can distribute Requests For Information (RFIs) to suppliers based on the part groups they offer.

As with the other PG&C objects, part groups are created and modified in Web Client. You can search for part groups in Java Client, but not create them.

Part Groups can be active or inactive (Lifecycle Phase). Part Groups are not routable, so they do not have workflows (the only routable PG&C object is the Declaration). They are simply used to categorize groups of parts.

Make Available As Attribute and the “Force/Identical” SmartRule

An attribute on **General Info** of part groups called Make Available As is not visible out-of-the-box. The Make Available As field exists for two reasons: it can be used by Agile customers who are upgrading from a previous release of PG&C, when Part Groups class was called Commodities class. It also provide a way for companies with both the PCM and PG&C solutions to keep their PCM commodities separate from PG&C part groups. If your company does not own Agile PCM, the Make Available As setting is not needed and is not enabled.

This setting can be set by the user who creates a PG&C object, but it cannot override the administrator’s SmartRule called “Force Commodity and Part Family to be Identical.” The Make Available As attribute may be visible if the “Force/Identical” SmartRule is set to No, as there may be reasons to create your object as a “Part Family-only” object.

These are some business rules around the settings of “Force/Identical” SmartRule and Make Available As attribute:

If the SmartRule is set to Yes, a part can belong to only one part group. If the SmartRule is set to No, an item can belong to one “Commodity Only” part group (in PCM) and one “Part Family Only” part group (in PG&C).

If the Smart Rule is set to No and Make Available As is set to “Part Family Only” or “Commodity and Part Family,” you can add manufacturer parts to a part group, while if Make Available As is set to “Commodity Only,” you cannot add manufacturer parts to a part group. If the Smart Rule is set to Yes, regardless of Make Available As value, you can add manufacturer parts to a part group.

Also note that when this SmartRule is set to No, when assigning different values for the Part Family and Commodity attributes, the mass, specification, active compositions, and corresponding substances will be copied from the part family object. When this SmartRule is set to Yes and both attributes are enabled, setting the value on one will automatically assign it to the other attribute.

To create a part group:

- 1 Choose **Create > Part Groups**. The Create Part Groups wizard opens.
- 2 In the Type field, select Part Group. (Other types of part group subclasses may also be available.) If conditions discussed above obtain, the Make Available As field may appear, pre-populated according to administrator’s choices.
- 3 In the Number field, enter the part group name. (The field will change to Name.) The name is not case-sensitive. Click **Continue**.

If you click the **Continue Creation in Wizard** checkbox, you will be able to **Continue** through all aspects of a part group. If you leave this checkbox blank, you will **Finish** the object creation process, and then you can add to the object by modifying it.

- 4 Enter General Information about the part group – Description, Mass and unit of measure, Lifecycle Phase, Overall Compliance, and any other **Page Two** information that may be required.

Click **Next**. The Add Content page appears.

- 5 Click the **Add** button, the Add Content wizard appears. This wizard is used to search for parts and manufacturer parts to associate with your part group. From the returned rows, select and move a part or multiple parts that you want to add to the **Selected** list.

Click **OK**, then click **Save**. The selected parts are added to the part group.

You can run more searches to add more parts as appropriate. When you are done adding parts, click **Next**. The Add Specifications page appears.

- 6 Use the same set of steps to search for and associate specifications to the part group. When you are done adding specifications, click **Next**. The Add Suppliers page appears.
- 7 Use the same set of steps to search for and associate suppliers to the part group. When you are done adding suppliers, click **Next**. The Add Attachments page appears.
- 8 If you want to add attachments, choose from the **Add** menu Files, URLs, or By Search, and navigate to the desired file or URL. When you are finished adding attachments, click **Finish**.
- 9 When your part group is complete, click **Finish**. The new part group appears with the **General Info** tab selected.

Importing Compositions into Manufacturer Parts

With Release 9.2.1, you can import compositions and substances directly into manufacturer parts without having to go through the RFI process (that is, data added via released declarations). You may need to quickly gather compliance information for manufacturer parts; you may already have the data in spreadsheet form; or, the data could be available on the website of an information supplier or other third party.

Release 9.2 enabled users to import specifications (<part/PG> > **Compliance** tab > **Specifications** table) and suppliers (<part/PG> > **Suppliers** tab) into items, manufacturer parts, and part groups. Now users can import compositions via **Manufacturer Part** > **Compliance** tab > **Compositions** table.

Importing compositions and substances requires the ability to create aXML files. This can be accomplished, for instance, if your company uses Agile Product Interchange to retrieve substance data from external sources, such as Part Miner or Total Parts Plus.

You will need to consult these Agile documents in order to perform all tasks necessary to importing compositions:

- ❑ Using the Import and Export tools: *Import & Export Guide*
- ❑ Using Product Interchange: *Product Interchange User Guide*

You will need to create aXML-format files with composition and composition substances, then use Agile Import to import the compositions and composition substances into the system.

In the case of integrations with Part Miner or Total Parts Plus, Agile Product Interchange can be used to pull data from these content providers and create the aXML file and then import it into the PLM system. (Documentation for Agile Product Interchange is available on the Agile Documentation website.)

Substances are also automatically imported to manufacturer parts when a declaration is submitted from Microsoft Excel-based Client.

Note When importing a composition into a manufacturer part, if Import detects a problem for any of the substances of a part, the compositions and substances with no issues will be accepted while the substances with issues will be rejected: this results in a partial import of substances. So, it is necessary to must review the data carefully to remove any problematic records.

Role of Composition Type Field

For a composition to be imported, the only required field is Composition Type. The available values for Composition Type are:

- ☐ Substance Composition
- ☐ Homogeneous Material Composition
- ☐ Part Composition.

It is not necessary for a composition to have a supplier or a name – remember that a composition is an important ‘concept’ in PG&C but there is no business object itself.

As there are more kinds of declarations than composition types, it can be helpful to group the Declarations classes as shown in the table. (Declarations are fully covered in the next chapter.) Supplier Declarations of Conformance do not have compositions.

Table 6-1: Mapping of declaration purposes with composition type

This declaration class...	... and this declaration class...	...release to this value in Composition Type	Validation Type of Specification
Substance Declaration, JGPSSI Declaration	IPC 1752-1 (Substance) Declaration	Substance Composition	Part Level
Homogeneous Material Declaration	IPC 1752-2 (Homogeneous Material) Declaration	Homogeneous Material Composition	Homogeneous Material Level
Part Declaration	—	Part Composition	Homogeneous Material Level or Part Level

When a composition is imported, it appears in the manufacturer part’s **Compliance** tab > **Composition** table. Before it begins the import, the system looks for an existing active composition with the same parameters (supplier and specification name); if it finds an active, matching composition, the active one is inactivated, the importing of the new composition begins and this one is made active.

A specification name in a composition is optional. If a specification is provided in the import file, it is added to the manufacturer part’s **Compliance** tab > **Specification** table.

After importing a composition into a manufacturer part, the system sets the specification’s Needs Rollup field in the **Specifications** table to Yes.

If a manufacturer part is associated with a part group, you cannot import compositions into the manufacturer part. You would have to create a declaration for the part group and bring substances to the manufacturer part via a released declaration.

There are now several sources of compositions. To identify the source, a manufacturer part’s **Compliance** tab > **Compositions** table has a field called Source. The following table gives an overview of sources of compositions and possible values for various fields of the **Compositions** table.

Table 6-2: Sources of compositions and values of various fields in Compositions table of parts and part groups

Composition source	Value in Source field of Composition table	Value in Supplier field of Composition table	Value in Composition field of Composition table
Publication of a declaration	String “Declaration” (class name in metadata)	Name of the supplier (link to supplier object)	Identifier of the declaration (link to declaration object)
Publication from a part group	String “Part Group” (class name in metadata) concatenated with identifier of the specific part group, for example, “Part Group XYZ”. This value does not change if name is changed.	- Name of the supplier on the part group declaration (link to supplier object) - Blank if the composition on the part group did not come from a declaration but, for example, from an import procedure.	- Identifier of the part group declaration (link to declaration object) - Blank if the composition on the part group did not come from a declaration but, for example, from an import procedure.
Revision change	String “Rev” concatenated with the identifier of the previous revision. Once the Source field is set, a change to the rev number does not change this value.	- Name of the supplier on the declaration (link to supplier object) - Blank if the composition on the previous rev did not come from a declaration but, for example, from an import procedure.	- Identifier of the declaration (link to declaration object) - Blank if the composition on the previous rev did not come from a declaration but, for example, from an import procedure.
Import of a composition	The value of this is the import filename, or “Import” if the field is blank in the import file	The value of this field in the import file or Blank (link to supplier object)	Blank.

Note When doing a SaveAs on a part or part group, the system copies the specifications, but not compositions.

More about Parts and Part Groups

Items and manufacturer parts that belong to a part group “give up” their independence in terms of declarations. That is to say, from the moment parts are associated with a part group until the moment they are disassociated from it, it is not possible to add those parts to a declaration separately. Nor is it possible to import compliance data into the parts separately. Specifications are forwarded from the part group as well but it is still possible to add specifications directly to the item or manufacturer part, regardless of part group associations.

When a part group is added to an item (that is, part but not manufacturer part), the active compositions of the part group are copied to the latest released revision (“rev”) of the part, as well as all Pending revs of the item. (Revisions in Agile PLM are thoroughly documented in *Product Collaboration User Guide*.)

When a new composition is added to a part group – through publishing a declaration – the system looks for other compositions for the same supplier, same specification, and same composition type (declaration type). If there exists an older active composition, then the older composition becomes inactive, and the new composition becomes active.

Also, when a new composition is added to a part group through a published (completed and released) declaration, that composition data is published to all manufacturer parts and items (latest Released rev and all Pending revs). The composition replacement logic runs through all manufacturer parts and items (by revs).

A part group can contain a combination of multiple items and manufacturer parts at the same time. The normal use case is that a part grouping either contains items *or* manufacturer parts.

- ❑ For items, belonging to a part group is rev-independent.
- ❑ For items, belonging to a part group is site-independent. (PG&C currently does not support Agile sites.)

CHAPTER 7

Declarations

This chapter describes how to use PG&C declarations. Declaration workflows are the agent of the RFI process. This chapter includes the following sections:

- ❑ *Declaration Workflow and the RFI Process*
 - ❑ *Declarations Classes and Contents*
 - ❑ *Working with Declarations*
 - ❑ *Importing and Exporting Declaration Data*
 - ❑ *Creating Declarations*
 - ❑ *Completing the RFI Process*
 - ❑ *Testing a Declaration for JGPSSI and the Microsoft Excel-based Client*
 - ❑ *Relationships and References Between Objects*
-

A Request For Information (RFI) consists of a material declaration, which lists the parts in a product assembly and shows the substances and materials contained in those parts. It is linked to specifications, which may restrict how much of a particular substance the product assembly may contain. A declaration request can contain multiple combinations of parts and part groups and specifications (or compositions).

Declaration Workflow and the RFI Process

There are seven default classes of declarations, and they all use the default Declarations workflow, which is the vehicle to send Requests For Information (RFIs) to your suppliers. As a routable object, the user's actions (on either the buyer or supplier side) result in the declaration moving into another status where the next user will act on it.

The user assigned as the “change analyst” of the compliance workflow is called the compliance manager. The compliance manager creates and sends a declaration request to an information supplier. The supplier completes the declaration by providing data statement for each combination of specification and part – the composition.

As outlined in the Introduction, the general sequence of the RFI process is:

- 1 Identify parts and part groups for which compliance data is required – see Chapter 6, “Parts and Part Groups.”
- 2 Identify people within your company (for parts) and suppliers (for manufacturer parts) who can provide compliance data. This may be an informal process – collecting names and verifying that internal and external (supplier) users with appropriate roles and privileges are available in the database – or involve more research and creation of an Approved Supplier List, or ASL. Also, see Chapter 9, “Managing Your Suppliers.”
- 3 Create declarations for parts, manufacturer parts, and part groups – see “Creating Declarations” on page 7-10.
- 4 Route a declaration to a supplier – details about the Declarations workflow are provided in “Routing Declarations” on page 7-12.

- 5 Supplier completes the declaration with data and a signoff – see “Information Supplier Fills Out a Declaration” on page 7-13.
- 6 Compliance data is assessed for completeness and validated for correctness. This may include running inboard compliance rollups – see Chapter 8, “Rolling Up Compliance Data.”
- 7 Reviewed and approved declarations are released, which “publishes” the data across the product record in Agile PLM – see “Completing the RFI Process” on page 7-13.

In this sequence of tasks, you have already identified parts/part groups, for which you must seek compliance information, and people, internal and external to your company, who will gather and provide that information.

Declarations Gather and Store Information about Compositions

Declarations are a structured way of bringing information concerning the environmental compliance of parts into Agile PLM. Each declaration is for a single supplier. Every declaration contains associations to parts or part groups, which, combined with one or more specifications, is the composition.

Information in a declaration can be stored at these levels:

- 1 At the **General Info** (Page 1), **Page Two** (fields from the class), and **Page Three** (fields from the subclass) levels of the declaration – these represent entered data about the declaration and describes what information is being sought.
- 2 At the **part level** within the declaration – that is, in reference to associated parts or part groups in the context of a specification – and at each of the Bill of Substances (BOS) levels if the declaration type requires the supplier to create a BOS for each affected part
- 3 At the **subpart level** within the declaration – in reference to associated subparts (a Substances class)
- 4 At the **material level** within the declaration – in reference to associated materials (a Substances class)
- 5 At the **substance group level** in the declaration – in reference to associated substance groups (a Substances class)
- 6 At the **substance level** within the declaration – in reference to associated substances (a Substances class)

Compositions in the Context of Declarations

A **composition** describes the aggregate data collected in a (published) declaration. A composition represents the sum of (1) a **supplier** for (2) a given **specification** and for (3) a given **part (plus revision) or part group**. (Compositions were introduced in “Compositions as Collections of Specific Data” on page 2-2 and continued in “Compliance Tab – Compositions in the Context of Parts” on page 6-3.)

Specific composition information is found in two places, on the part and on declarations that list the part. For example, for **Item XYZ**, composition data is found as follows:

Item XYZ	Declaration ABC
Compliance tab	Items tab > Items table > click Part XYZ
Compositions table > click View Substances , you see the associated substances-per-supplier	Items tab > Substances table shows the associated substances-per-supplier for Part XYZ

A compliance manager adds parts/part groups to a declaration. Parts in a BOM that are listed in a change order as **affected items** indicates that the change affects the item by modifying it in some way, thus altering the product record. Parts in a BOS that are listed in a declaration can be called **affected parts**, indicating that the declaration seeks to affect the part or part group by collecting its compliance data, thus altering the product record. Taking the specification(s) into account, the system merges the affected parts and specifications to create a unique “Affected Part/Part Group–Specification” line item for that one supplier – each line is a composition.

So, compositions are found under the various “affected parts” tabs contained in published declarations and under the **Compliance** tab of associated parts and part groups. Although each declaration goes to only one information supplier, declarations can contain multiple parts, manufacturer parts, and part groups simultaneously. In this way, a declaration can contain the data for multiple compositions.

Note A field called Composition on the Compliance tab of parts and part groups displays links to declarations: this heading simply indicates “the declarations below provide information about compositions.” The declaration is the container of compositions.

Types of compositions in a declaration:

- ❑ “Yes / No / Exempt” declaration at the part or part group level
- ❑ “Yes / No / Exempt” declaration at subpart, material, substance group, and substances level of part or part group
- ❑ “PPM / Weight” declaration at the material and substances level of a part or part group
- ❑ Combination of the previous types

Declarations Classes and Contents

A declaration is the main object of record in the PG&C solution. It tracks the substances and materials that are used for items, manufacturer parts, and part groups. When a declaration is released, the information gathered from it is published to the product record, thereby updating the composition data contained within the items, manufacturer parts, and part groups listed by the declaration.

The Declarations base class has seven default classes of declarations, each with a single child subclass. The following table defines the kinds of declarations in PG&C.

Table 7-1: Declarations classes

Declaration class	Definition	Specification type
Substance Declarations	The supplier is requested to provide compliance information for each substance within the specification.	must be part-level spec
Homogeneous Material Declarations	The supplier is requested to provide a complete BOS breakdown of the part and provide compliance information at the homogeneous material level.	must be homogeneous-material level spec
Part Declarations	Receive part-level compliance information as well as other composition header level information (manufacturing parameters).	can add any type of spec
JGPSSI Declarations	The supplier is requested to provide compliance information (weights) according to the JGP standard. Note: There is now a fully supported Japanese version of the JGPSSI template for creating JGPSSI Declarations; see your administrator.	must be part-level spec
Supplier Declarations of Conformance	A questionnaire to assess supplier compliance with specifications from customers and government agencies. The survey addresses compliance at a general company level. Can be used for CSR type declarations.	can add any type of spec
IPC 1752-1 Declarations	A Joint Industry Guide (JIG) material composition declaration for electronic products.	maximum of one spec, which must be part level
IPC 1752-2 Declarations	A homogeneous material composition declaration for electronic products.	maximum of one spec, which must be homogeneous-material Level

Note Substances and substance groups are pre-populated only in Substance Declarations. (In PLM 9.2, substances were also pre-populated in JGPSSI Declarations, but this has been removed.)

More About the Declarations Classes

These are additional facts and rules of business logic for the out-of-box Declarations classes.

Supplier Declarations of Conformance

This class of declarations requests statements from suppliers at a supplier level. It is basically a supplier survey. Your company wants to send out a questionnaire and receive a declaration from the supplier to assess compliance with specifications from customers and government agencies. Typical questions could be: Do you have a RoHS compliance Initiative going on? When do you anticipate to have 100% compliant Product? Which ISO certifications do you possess. No fields are pre-populated in this declaration. The SDOC does not require association with any items, manufacturer parts, part groups, or even specifications in order to be effective. Adding specifications to this type of class is allowed for reference purposes.

Japanese Green Procurement Declarations

This class of declarations is used against the template for the Japanese Green Procurement format. Agile supports only JGPSSI version 2.02. Your company wants suppliers to provide a declaration in the JGPSSI format using the JGPSSI supported entities. No substances from specifications are pre-populated in this declaration.

Note Agile has released a Japanese-language template for use in JGPSSI Declarations. See your administrator.

Part Declarations

This class of declarations is used to ask questions related to parts or part groups. Your company wants to send out a questionnaire to assess part compliance with specifications from customers and government agencies. Typical questions could be: What is the maximum re-flow temperature of this part? What type of plating is on this part? Is this part in compliance with a certain specification? No fields are pre-populated in this declaration.

An issue has been resolved where it is possible to add any kind of specification to a part declaration, regardless of the Validation Type set for the specification – Part Level or Homogeneous Material Level.

Substance Declarations

This class of declarations allows a supplier to respond at a substance-group level and at a substance level without being able to add to the BOS. It could be a material compliance declaration in which your company wants suppliers to declare compliance with specifications at the substance level; or, it could be a partial material disclosure declaration in which your company wants suppliers to disclose the weight and/or concentration of selected (or all) substances that are contained within the components and subassemblies it sources from this supplier.

A substance declaration supports pre-population of substances and substance groups from associated specifications.

Homogeneous Material Declarations

This class of declarations allows a supplier to build a BOS consisting of four levels: subpart, homogeneous material, substance groups, and substances. It could be a material compliance declaration at the homogeneous material level, or it could be a partial material disclosure declaration to discover the weight and concentration of substances that are contained within the homogeneous materials. This can be effected through an outside application or spreadsheet. No fields are pre-populated in this declaration.

IPC 1752-1 and IPC 1752-2 Declarations

Two classes have been added to the PG&C Declarations base class to support compliance work using the IPC forms for substance declarations (IPC 1752-1) and homogeneous materials declarations (IPC 1752-2). These forms are in Adobe PDF format. Adobe Acrobat 7.0 is the minimal requirement. The website for Adobe Software is www.adobe.com.

Release 9.2.1 only supports draft “Version 10” of the IPC format, not released Version 1.0. The website for the IPC forms and information about the “1752” standards is www.ipc.org/IPC-175x. No fields are pre-populated in this declaration.

Note If you create one of the “1752” declarations and name a part/part group whose Name or Number includes square brackets (“[” and “]”), the IPC transformation (through the Excel integration) treats it as a manufacturer part and then it sends an error message that the manufacturer part does not exist in the declaration. You must remove the brackets from the part, manufacturer part, or part group’s Name or Number.

Note that you can add only one specification to an IPC declaration request.

Important Although the two kinds of IPC objects can have multiple parts listed, the PDF format has an issue importing multiple parts. The identification numbers of multiple parts are not properly imported into the PDF, only the number of the first listed part.

In this same case, when re-importing the data from the IPC PDF format, the system treats all the multiple parts as Manufacturer Parts and rejects them.

We expect these issues to be resolved in the future by the makers of the PDF form; in the meantime, the workaround is to limit each IPC declaration to only one item, manufacturer part, or part group.

Working with Declarations

Declarations are the “workhorses” of the PG&C solution, carrying many kinds of data and giving that data dynamic qualities as they are published into the product record. This section reviews the basic tabs in declarations and what kinds of information each tab carries. The next section, “Importing and Exporting Declaration Data” on page 7-8, treats the actions separately because they are different for each kind of declaration. Finally, “Creating Declarations” on page 7-10, covers that aspect of this object type, before the chapter resumes describing the RFI process in “Completing the RFI Process” on page 7-13.

For more general information about objects, tabs, and actions, see Chapter 5, “Working with Objects,” in *Getting Started with Agile PLM*. Common to all objects are **Page Two**, **Attachments**, and **History** tabs. The use of the **Attachments** tab is detailed in Chapter 9, “Working with Attachments,” of *Getting Started*.

Cover Page

The **Cover Page** tab provides general information about this object. The declaration’s name, description, supplier, date sent to supplier, and due date are entered when creating the declaration. The **Cover Page** carries information about the compliance manager and the supplier, including contact users. After the declaration has been created, you can edit this information by choosing the **Edit** button in the **Cover Page** tab.

Note As soon as a part or part group is added to a declaration, the associated supplier cannot be changed.

- ❑ **Supplier** – Unless the administrator has made the Supplier field for the type of declaration you are creating ‘Not Required’, an Active supplier must be named. The supplier can be a Web Supplier (that is, in Supplier object, Web Supplier field = Yes) or a “non-Web Supplier” (Web Supplier field = No): but a Web Supplier must have at least one associated Contact User, while a non-Web Supplier may be named in the declaration with no associated contact users. It is recommended that declarations name a Web Supplier, as PG&C carries and publishes the most complete information when a Web Supplier with contact users is associated.

Note If the Supplier field has been made Not Required (by the administrator, for a given class or classes of declaration), you can still add a supplier to the new declaration. However, with Supplier field Not Required, if you create a declaration from a part/PG’s **Actions** menu, you are not allowed to add a supplier, since from the part’s **Actions** menu the declaration is created with the part already added (and, as noted above, once a part is added to a declaration, in effect the Supplier field cannot be changed).

Affected Part Tabs

The following chart shows the hierarchy of data about parts and part groups that are contained in most declarations (excepting, for example, Supplier Declarations of Conformance). Each “affected parts tab” in a declaration has a “Parts” table and a “Substances associated with Parts” table:

Items tab	Manufacturer Parts tab	Part Groups tab
Items table lists parts on the declaration	Mfr Parts table lists manufacturer parts on the declaration	Part Groups table lists part groups on the declaration
Substances for Item [listed] table lists substances for each part	Substances for Mfr Part [listed] table lists substances for each manufacturer part	Substances for Part Group [listed] table lists substances for each part group

Note that the part declaration does not have a **Substances** table. For each part and part group, the **Substances** tables list their associated substance composition, providing the part or part group has been associated with substances. You can filter the **Substances** table to isolate substances for a particular part or part group.

- ❑ **Exemption** – There is an Exemption field on a declaration’s <Parts/PGs> tab and on a declaration’s <Parts/PGs> **Substances** table. Remember that Exemptions is a field on a specification’s **General Info** page (see page 5-2): when a specification is created, exempted substances are selected as a subset from a drop-down list that represents all substances of concern (this master list was created by the administrator). So, on a declaration’s **Parts** table or part group’s **Substances** table, for a part, when you set a substance to Exempt, the values you see on the Exemption attribute is really coming from the associated specification.

For this reason, Declared Compliance (see below) is valid only if there is an associated specification in the declaration. Only when there is a specification, and the spec has exemptions associated (found in the spec’s **General Info**), can you set Declared Compliance to Exempt: when you do, you are then prompted to select an exemption from the list.

In support of the concept of composition, the following fields are important. Note that not all of these fields are in all the declarations. Some fields by default may be hidden, for example, Calculated Compliance.

- ❑ **Calculated Compliance** – the system stores its rollup results here. Read-only to all users.
- ❑ **Declared Compliance** – if enabled, can be used by the supplier to declare his compliance with the specification for each level of the BOS. Declared Compliance supersedes the Calculated Compliance in the rest of the rollups. Note, however, that the system does not consider a value in Declared Compliance if there is no associated specification; without a spec in the declaration, values in Calculated Compliance field supersede any values in Declared Compliance field.
- ❑ **Mass** – read only to all users, the system stores its rollup results here. The mass of each level in the BOS.
- ❑ **Threshold Mass PPM** – this value comes from specifications for all substances contained in the specifications; if enabled, can be used by the supplier to declare the mass at each level of the BOS. It supersedes the calculated mass in the rest of the rollups.
- ❑ **Calculated PPM** – the PPM as the result of the division of the mass of two levels.
- ❑ **Declared PPM** – if enabled, can be used by the supplier to enter the PPM values directly.

For more information about compliance rollups, see Chapter 8, “Rolling Up Compliance Data.”

Working with the Part Tables

Using the table above, the various part and part group tabs in a declaration work similarly to add, edit, and remove parts.

With the current release, you cannot directly add or import substances into items or part groups; Rel. 9.2.1 introduces direct importing of compositions and substances into manufacturer parts (see “Importing Compositions into Manufacturer Parts” on page 6-8).

These are two general methods to add substances to parts and part groups:

- 1 When a declaration is released, the specifications and substances from the declaration are published to its parts.
- 2 When a part is associated with a part group, then any specifications, compositions, and substances from the part group are copied to the parts (with the conversion factor that was provided).

Remember that when adding **<parts/PGs>** to a declaration, if the declaration already contains specifications, PG&C will create part+spec combinations – compositions – for each specification in the declaration.

To add a part or part group to a declaration:

- 1 Open the declaration, click the specific **<Part/PG>** tab for the type of part/PG you want to add.
- 2 On the **<Part/PG>** table, click the **Add** button, the “Add <Part/PG>” wizard appears. This wizard is used to search for parts to associate with your declaration. From the returned rows, select and move a part or multiple parts that you want to add to the **Selected** list.

Click **OK**, then click **Save**. The selected parts are added to the declaration.

You can run more searches to add more parts as appropriate.

- 3 When you are done adding parts, click **Finish**.

To edit a part or part group on a declaration:

- 1 Open the declaration, click the specific **<Part/PG>** tab for the type of part/PG you want to edit.
- 2 On the **<Part/PG>** table, select the row of the part you want to edit, then click **Edit**.
- 3 Make the desired changes to the part, then click **Save**.

To remove a part or part group from a declaration:

- 1 Open the declaration, click the specific **<Part/PG>** tab for the type of part/PG you want to remove.
- 2 On the **<Part/PG>** table, select the parts you want to remove, then click **Remove**.
- 3 Click **OK** complete the removal or **Cancel** to cancel the removal.

Working with the Part Substances Tables

The **Substances for <Part/PG>** tables on the **<Part/PG>** tabs of declarations are Read Only. The only way to add substances to the **Substances for <Part/PG>** tables is by Process Extensions, by implementing the Excel integration or, for IPC declarations, by using XML-based integration; see “Importing and Exporting Declaration Data” on page 7-8.

When adding substances to the declaration, the substances and substance groups must exist in the system as global objects; however, the subparts and materials need not exist in the system as global objects. The system is designed to accept subparts and materials within the scope of the declaration. This is because only your information suppliers know what subparts and materials exist in their (manufacturer) parts, and they should be free to add any subparts and materials to the parts in the declaration (again, using the two methods mentioned above).

These subparts and materials in the scope of declaration aren’t visible outside the composition, meaning you cannot search and find these temporary subparts and materials. Once the declaration is released, and the specifications, compositions, and composition BOS are all published, the system does not create global subpart and material objects, they remain composition-specific. That means two compositions can have the same subpart or material name with completely different children (BOS).

Note that in Rel. 9.2.1 you can import subparts and materials with the same name as substances or substance groups, which was not allowed in Rel. 9.2. This is only within the scope of the declaration.

Add/Update with Import

In a declaration **Substances** table, if **Add/Update** mode is being used, when there is something wrong in the data being imported, the system only deletes existing substances for parts in the immediate Import file, not other parts and BOS in the declaration that were imported (in the same Import session, that is). Previously, if there was a problem in the Import file, the system would delete all substances for all items in the declaration, even previously imported substances, and now it deletes substances in the specific Import file/operation. Substances imported successfully already, are not deleted.

Specifications Tab

When adding specifications to a declaration, for every part in the declaration, the system creates “part+spec” combinations, or compositions.

The compliance manager may inform the supplier that the buyer is going to validate the supplier's substances based on the specifications on the **Specifications** tab. If there are one or more specifications associated with this substance declaration (this type only), the system automatically prepopulates the substances from those specifications for all the items, manufacturer parts, or part groups in this declaration. If there is no specification associated with this declaration, no substance is prepopulated, even for the substance declaration.

The **Specifications** table of a declaration lists specifications related to the items, manufacturer parts, and part groups contained in the declaration. The purpose of a declaration is to ensure that suppliers comply with any restrictions stated in the specifications. Also see the discussion of Exemptions field in “Affected Part Tabs” on page 7-6.

The specifications may concern many substances, including those not used by the parts contained in the declaration. When a substance declaration is opened to the supplier, any substances from the specifications are automatically added to the **Substances for <Part/PG>** tables. This ensures that you are properly tracking any restricted substances contained in parts listed in the substance declaration.

Note The IPC declarations can hold a maximum of one specification each. There is no restriction to the other classes of declarations.

Workflow Tab

The default Declarations Workflow is used in the RFI processes. The **Workflow** tab of a declaration shows all the statuses the declaration has passed through, and which statuses remain to be completed. It also shows all the approvals and rejections made during each approval cycle. See “Routing Declarations” on page 7-12.

For more information about using the **Workflow** tab, see the chapter on Items in *Product Collaboration User Guide*. There is also a chapter on workflows in *Getting Started with Agile PLM*.

Importing and Exporting Declaration Data

Generally, exporting and importing data from declarations is handled by process extensions, which appear in the **Actions** drop-down menus.

Declarations Actions (Process Extensions)

The standard **Actions** that are available on a declaration object are **Bookmark**, **Subscribe**, **Save As**, **Delete**, **Export**, **Print**, **Send**, **Sharing**, **Audit Status**, **Audit Release**, **View Workflows**, and **Calculate Compliance**. The **Calculate Compliance** action invokes a composition (BOS) rollup. See Chapter 8, “Rolling Up Compliance Data.”

Assuming the administrator has assigned out-of-box process extensions (PX) to PG&C declarations, they contain these additional class-specific actions:

Additional Actions	Found in objects from these classes:	Result of this action
Open in Excel Import JGPSSI Export JGPSSI	JGPSSI Declarations class	• Open in Excel – This action activates the Microsoft Excel-based Client and opens the JGPSSI template in Excel • Export JGPSSI – This action exports data to a text file in JGP Block format for integration with the JGPSSI Excel template • Import JGPSSI – This action imports data from a text file in JGP Block format for integration with the JGPSSI Excel template
Import AXML Export AXML	Homogeneous Materials Declarations class Part Declarations class Substance Declarations class	• Export AXML – “AXML” is Agile XML, an XML representation of Agile's business schema that contains all product content managed in Agile. You or a supplier use it to export the declaration information in aXML format. The declaration can be completed and re-imported into PLM. • Import AXML – A declaration that was exported using the aXML format and then completed can be imported back into PLM using this action.
Import IPC XML Export IPC XML	IPC 1751-1 Declarations class IPC 1752-2 Declarations class	• Import IPC XML – Imports XML data that is used to complete IPC forms • Export IPC XML – Exports XML data that is used to complete IPC forms

Importing and Exporting IPC Declarations

This task outlines how you could send an IPC declaration that you have created in Agile, while the supplier completes the declaration working in the IPC PDF format.

A typical RFI sequence with an IPC declaration:

- 1 You create an IPC declaration in Agile PLM.
- 2 The default workflow for the declaration is moved to the **Open to Supplier** status.
- 3 The contact user for the information supplier opens Web Client (Basic) and sees the declaration. The supplier could simply open the declaration in Agile. Your administrator's setup of PG&C also presents an alternative, via the process extension **Export IPC XML**; this appears as a link in the declaration row that the supplier can click directly (or, if the supplier clicks the declaration name, all the process extensions are displayed as links on the left navigation pane of Web Client (Basic mode). An XML file is saved.
- 4 The IPC form is found on the machine – the supplier user will have IPC PDF forms downloaded from IPC web site – in an IPC folder. The supplier user opens the form in Adobe Acrobat and clicks **Import Data** (or **File > Form Data > Import Data to Form**), then specifies the location of the XML file. The XML data is imported to the PDF form.
- 5 The supplier user enters or modifies values in the declaration.
- 6 When completed, the data is exported using **Export Data** (or **File > Form Data > Export Data from Form**). The existing XML file is overwritten.
- 7 The supplier returns to Web Client and uses the **Import IPC XML** process extension to import the modified XML data. Then he submits the declaration to the buyer firm.
- 8 At the buyer site, you can open the completed declaration in Agile to review for possible release.

This sequence is an outline. *Agile PLM Import & Export Guide* fully documents the use of the Import/Export tool.

Notes

The following notes detail exceptions during importing and exporting declaration data.

When importing parts to a declaration for the first time, the value for all the attributes that are mapped to the part's **PageTwo**, **PageThree** attributes will overwrite the values from the import file.

After importing a substance using **Import JGPSSI**, **Import AXML**, or **Import IPC XML**) process extensions, on the first time visiting the declaration **Items** tab, only the top-level substances are displayed. The Import Summary page now offers this message: “Click the **Refresh** button on the main toolbar to view the imported updates.”

When importing substances for multiple parts into a declaration, if Import detects a problem for any of the substances of one part, the complete Bill of Substances for all the parts in the declaration will be rejected, even those whose substances are not problematic. The system exposes all the issues at once and reports them to you, so you can fix all the errors and import again. (Although this prevents faulty data from being imported, in a future release it will permit parts without problems to go through.)

Declarations created in PLM 9.2 cannot be imported to a PLM 9.2.1 system. Also, declarations created in PLM 9.2.1 cannot be imported to a PLM 9.2 system, unless you made appropriate changes to match the name changes in the XML file.

When importing a composition into a declaration, the Threshold Mass PPM and Reporting attribute values from the specification should be copied to the level at which compliance is being calculated. This can be done, for example, when a Bill of Substances is imported into a declaration with both substances and substance groups, the Threshold Mass PPM value is copied from the specification into the corresponding level in the BOS tree (on the declaration’s **Substances for <part/PG>** table) at which the compliance is calculated.

Creating Declarations

Compliance managers (an Agile user who has been assigned the Compliance Manager role) can create declarations. (More specifically, a user with a role that has the Create Declaration privilege can create a declaration; Compliance Manager is the out-of-box role with this privilege.) You can create a declaration either through the Create function, or by choosing **Actions > Create Declaration** from within an item or manufacturer part or part group.

By default, the name field uses an Autonumber format with the prefix “MD” (for “Material Declaration”). Although the Autonumber format isn’t required, it makes sense to use the same prefix for all declarations to make it easier to search for them. In any case, the name must be unique and it must be upper case (unless the administrator has changed the character set for declaration names and allows mixed case).

When you create a declaration, you must specify a unique declaration name and a supplier. Supplier users with the (Restricted) Material Provider role (and who are not restricted to the Basic supplier interface) can also create declarations: in this case, only the Name attribute is required to create the object (because it is a “Restricted” role); the Supplier attribute is filled in automatically with that user’s supplier organization.

Note that some values for contact user fields come from the supplier object while some values come from the supplier user object (the contact users).

Selecting Specifications in the Create Declaration Wizard

Specifications are associated with declarations to provide the basis by which compliance information is specifically requested and, upon completion by the supplier, evaluated by the compliance manager. The declaration’s **Compliance** tab lists associated specifications.

The create wizard prompts for the selection of specifications to add to the declaration, but the type of specifications that are presented and appropriate to select depend on the type of declaration that is under creation. See Table 7-1 on page 7-3 for information about which type of specification you can add to each type of declaration.

If no specification is added to the declaration, it should still function. The declaration is then merely a part survey for weight and perhaps PPM information and no longer a request for a compliance statement. Obviously selecting a value in a compliance field has no meaning at that point but the system should still function.

Since there is a limitation between the class of the declaration and the type of specification attached to the declaration, there is no way the user will be able to change the class of a declaration.

Using the Create Wizard

This task steps through the Create wizard to configure a declaration. Further on, in “Testing a Declaration for JGPSSI and the Microsoft Excel-based Client” on page 7-14, a task lists start-to-finish steps for creating, submitting, (supplier) modifying, and receiving a JGPSSI declaration.

To create a declaration:

- 1 Choose **Create > Declarations** and select one of the declarations classes. The wizard opens, with Type already specified (unless other types of declaration subclasses for the class that you selected have been created by the administrator, there is only one child subclass for each class of declarations).
- 2 In the Number field, a Declaration number is automatically generated. Accept or modify this identification.
- 3 Click  to find and select a supplier. You are allowed to select only one supplier per declaration.

Note that when creating a declaration from part or part group **Actions** menu, if there are suppliers in the part or part group **Suppliers** tab, those suppliers appear in the dialog; you can either select one of them or search for a different supplier to add to the declaration. When a supplier is added to a declaration, details pertaining to the supplier are added to **Cover Page** and **Page Two** fields, provided it is a Web supplier with at least one associated contact user (see following Note).

Note PLM now allows declarations to name either kind of supplier: a Web Supplier (Supplier object > **General Info** tab > Web Supplier field set to Yes) must have at least one associated Contact User; a non-Web Supplier (Supplier object > **General Info** tab > Web Supplier field set to No) may be named in the declaration with no associated contact users. However, it is still recommended that a declaration name a Web Supplier: PG&C carries and publishes the most useful information if a Web Supplier with associated Contact Users is named; for example, those contact users receive notifications. PLM 9.2.1.3 has removed the requirement that a declaration have a supplier at all; but the administrator must have made the field ‘not required’.

If you click the **Continue Creation in Wizard** checkbox, you will be able to **Continue** through all aspects of a specification object. If you leave this checkbox blank, you will **Finish** the object creation process, and then you can add to the object by modifying it.

Click **Continue**.

- 4 Enter the general information (Description, Declaration Type, Compliance Manager, Workflow, and Due Date). It is recommended to always assign a compliance manager. If you do not, when the supplier returns declaration, all compliance managers in the system will be notified. Note that when you select a compliance manager, the values on these attributes are added immediately: Title, Phone, Email, and Fax.
- 5 You may click **Finish** at this point, and the declaration will be created. Later you can add parts, manufacturer parts, part groups, and specifications to the declaration.

If you want to add any of these objects during the create process, click **Next**.

- 6 On the Add Specifications page, click the **Add** button, and select **By Search** or **Type in Known Number**.

If you select **By Search**, the Add Specifications wizard appears. This wizard is used to search for specifications to associate with your declaration. From the returned rows, select and move a specification that you want to add to the **Selected** list.

Note There is some restriction on what type of specifications can be added to a declaration. The validation level is displayed in the Add Specification search wizard, and you must select an appropriate specification based on the validation level – Part level or Homogeneous Material level.

Click **OK**, then click **Save**. The selected specification is added to the declaration.

You can run more searches to add more specifications as appropriate. Depending on how many specs are added, that many records or entries will be created for each part or part group that is added to the declaration.

When you are done adding specifications, click **Next**. The Add Items page appears.

- 7 Use the same set of steps to search for and associate items (Agile parts or documents) to the declaration. When you are done adding parts, click **Next**. The Add Manufacturer Parts page appears.
- 8 Use the same set of steps to search for and associate manufacturer parts, and then part groups, to the declaration. When you are done adding manufacturer parts and part groups, click **Next**. The Add Attachments page appears.
- 9 If you want to add attachments, choose from the **Add** menu Files, URLs, or By Search, and navigate to the desired file or URL. When you are finished adding attachments, click **Finish**.
- 10 When your declaration is complete, click **Finish**. The new declaration appears with the **Cover Page** tab selected.

Note If you have added m number of specifications and n number of parts, you will create $(m \times n)$ compositions in the declaration Parts table, and each of these compositions has its own set of substances that are governed by the threshold defined in specification for that composition.

Pre-population of substances occurs only when there is a specification present and only for Substance declarations. If you do not associate any specification to a Substance declaration, no substances are pre-populated to the declaration.

Routing Declarations

The Default Declarations workflow follows a straightforward process flow, as detailed in the following table.

Table 7-2: Typical RFI Workflow

Status	Action
Pending	Compliance manager (an Agile user who has been assigned the Compliance Manager role) creates a new declaration, or modifies an existing declaration by adding new items, manufacturer parts, or commodities. Specifications are added to the declaration, and also an information supplier; there is always only one supplier per declaration.
Open to Supplier	The declaration requests the supplier (an Agile user who has been assigned the Material Provider role) to confirm whether parts comply with specifications. For more information about creating and managing suppliers, see Chapter 9, “Managing Your Suppliers.”
Submit to Manager	Supplier confirms or denies that the parts that they supply comply with regulations. The supplier electronically “signs” and submits the declaration back to the compliance manager.
Review	The compliance manager and other reviewers verify and approve the contents of the declaration.
Released	The compliance manager releases the declaration, thereby publishing the new data about the substances and materials into the product record. Once published, the materials are visible on the Compliance tab of the part or part group, as appropriate. The “buyer” company can now examine the quantities of all materials in a given top-level assembly and find out if the assembly is compliant with a set of specifications.
Implemented	Once the parts are manufactured and disseminated in the field, the compliance manager implements the declaration, thereby completing the workflow.

For more information about workflows and customizing workflows (including how to add and remove approvers and observers), see Chapter 8 of *Getting Started with Agile PLM*.

Once a declaration is opened to a supplier, only the supplier’s contact users can edit it (that is, Agile users assigned the Material Provider role). For other users, including the compliance manager, the declaration becomes read-only until it is returned by the supplier (unless, as always, the behavior of the workflow has been modified by the administrator).

Notifications when Declarations Advance to and from Supplier

This set of default behaviors regards automatic notifications, not user-designated Approvers and Observers.

- ❑ **Declaration Buyer to Supplier** – The notification is automatically sent to the supplier. You can add more users to receive notification.
- ❑ **Declaration Supplier to Buyer** – The compliance manager is automatically added to the notification list. If no compliance manager was selected, the system add everyone on the Compliance Managers notification list.
- ❑ **Declaration Supplier to Buyer** – If there are no compliance managers in the system, the originator is added to the notification list.

Information Supplier Fills Out a Declaration

This manual has more information about suppliers in Chapter 9, “Managing Your Suppliers.” The *PG&C Supplier Guide* is written to suppliers and documents the supplier experience in the PG&C solution.

When a declaration request is opened to an information supplier, the supplier is responsible for completing the declaration and disclosing if any restricted substances are contained in the components and subassemblies it provides and whether those substances comply with specifications.

To complete and sign off on declarations, one or more contact users for the information supplier must be assigned the (Restricted) Material Provider role. If you have questions about who in your supply chain has been assigned this role, see your administrator.

The Material Provider user should do the following to complete a declaration.

- ❑ For each part, manufacturer part, and part group, fill in the **Mass**, **Mass PPM**, and **Compliance** fields, particularly for substances that are restricted by specifications
- ❑ Add or remove substances from the **Substances** tables (under the **Items**, **Manufacturer Parts**, and **Part Groups** tabs) on the declaration as necessary; to do this, they must use process extensions (**Export AXML** and **Import AXML**) or the Microsoft Excel-based Client
- ❑ Complete other flex fields on the <parts/PG> tables as well as the <parts/PG> **Substances** tables.

For detailed tasks about adding, removing, and editing data on declarations, see “Working with Declarations” on page 7-5.

When the material provider changes the status of the declaration from **Open to Supplier** to **Submit to Manager**, he must “sign off” the declaration.

Completing the RFI Process

Once the compliance manager has received, reviewed, and approved the content of the declaration, he advances the workflow to the Released status, and the new data about substances and materials are automatically published to Agile PLM. Once published, the materials are visible on the **Compliance** tab of the part or part group, as appropriate.

The “buyer” company can now examine the quantities of all materials in a given top-level assembly and find out if the assembly is compliant with a set of specifications by running compliance rollups. See Chapter 8, “Rolling Up Compliance Data.”

Notes on Excel-based Declaration Submissions

When the supplier has used the Microsoft Excel-based Client to submit the declaration, it is possible that data may not be successfully imported to the buyer side. There are two stages in which their data is processed. The data is uploaded to the server; upon successful upload, the supplier receives the message that “Your data has been submitted for processing.” The data is then be processed on the server and imported into the system.

If there was a problem with the upload, the supplier is notified immediately; but if the problem occurs at processing or importing on the server side, the system sends an email with the error log as an attachment to the supplier. This means that the declaration remains in Open to Supplier status, and this does not change until the supplier reviews the log in the email notification, makes appropriate changes, and re-submits.

Even if the import on the server side is successful, depending on the size of the declaration, it will take some time for the declaration to move from Open to Supplier to Submitted to Compliance Manager. So if the user checked the declaration immediately after submitting from Excel, they may not see the changes for awhile.

These “under the hood” behaviors are detailed so that you can instruct your suppliers.

Reviewing and Publishing a Declaration

Once a declaration is released, it is automatically published. When a new declaration is published, it overwrites substances from previously published declarations.

If the substance data on an item’s or manufacturer part’s **Compliance** tab is from a declaration, you cannot modify it except through another declaration.

When a declaration is released for an part or part group:

- ☐ The composition appears in the **Active Declarations** table in the part’s **Compliance** tab.
- ☐ If a matching declaration exists (same supplier + same spec), then the previous declaration is moved to **Historical Declarations** table and the new one becomes active.

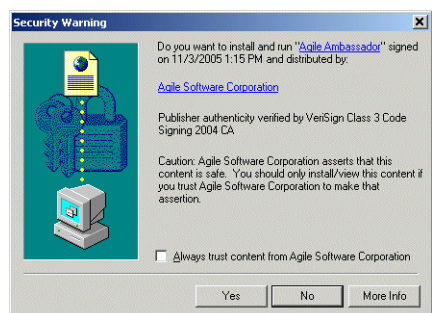
Testing a Declaration for JGPSSI and the Microsoft Excel-based Client

This task is documented in the Installation guides for Agile PLM, and it has likely been verified with regard to setting up the Microsoft Excel-based Client. It is printed here in entirety for your own testing.

To test JGPSSI Declarations:

- 1 In Agile Web Client, choose **Create > Declarations > JGPSSI Declarations**.
- 2 Specify a supplier. Also, make sure the **Continue Creation in Wizard** box is checked. Click **Continue**.
- 3 In the **Compliance Manager** field, select a user who is a compliance manager.
- 4 In the **Workflow** field, select Default Declarations. Click **Next**.
- 5 On the Add Specifications page, click **Next**.
- 6 On the Add Items page, click **Add** to add an item. Type an existing item number and click **OK**.
- 7 Click **Finish**.
- 8 Choose **Actions > Open in Excel**.

After a moment, a Security Warning dialog box appears.



- 9 Make sure the **Always trust content from Agile Software Corporation box** is checked. Click **Yes** to install and run the Agile PLM ActiveX Control (also called Agile Ambassador).
- 10 After a moment, Microsoft Excel is launched and a file with the name *declaration_number.xls* is opened. You are prompted to save the file to a folder on your desktop called Material Declaration Requirements. Click **Save**.
- 11 Close Microsoft Excel and return to the Agile Web Client.
- 12 For the new JGPSSI Declaration you created, click **Next Status** to open it to the supplier.
- 13 Select users to notify, and click **OK**.
- 14 Click the **Exit** button to log out.
- 15 Click **Login**. Log in as a contact user for the supplier associated with the JGPSSI Declaration.
- 16 Click the link to the JGPSSI Declaration to open it.
- 17 In the Navigation pane, click **Open In Excel**.
- 18 After a moment, Microsoft Excel is again launched and the same file as earlier is opened. You are prompted to save the file to a folder on your desktop called Material Declaration Requirements. You've already saved it earlier, so click **Cancel**.
- 19 Fill in a one or more fields on the sheet. For example, change the value of the Parts Mass field.
- 20 Save the Microsoft Excel file.
- 21 Choose **Agile > Submit Response**. The Submit Response window appears.

Every time a user submits from Excel, the system prompts the user to log in to validate the user credentials.
- 22 Type your approval password, and click **Submit**.
- 23 Wait while your response is uploaded. After a minute, a message box should appear: "Your response was successfully submitted for processing." Click **OK**.

As detailed above, at this point only the data from Excel is uploaded to the server, but it has not been imported into the system. Only when the supplier receives notification that the import was successful has the declaration been successfully processed; otherwise, the supplier has to submit again.

Relationships and References Between Objects

You can determine how Agile objects affect each other by setting up relationships between them. For example, you can determine that MD_100 affects MD_250, and that when MD_100 reaches the Implemented status, MD_250 is promoted to the Complete status automatically.

Such a relationship is created when you add an object to a table in the **Relationships** tab of another object. Declarations are the PG&C object type that handles relationships and references.

The **Reference** table is a simpler, less dynamic instance of object-to-object relationship; it simply lists references to other objects. It can be thought of as "bi-directional" information, because references do not trigger events.

By default, both the **References** and **Relationships** tabs are disabled, so you do not see these tabs unless the administrator has enabled them. If you find that you want to create a relationship or reference between PG&C objects and those tabs are not visible, see your Agile administrator.

For more information about relationships and references, see Chapter 5, "Working with Objects," in *Getting Started with Agile PLM*.

CHAPTER 8

Rolling Up Compliance Data

This chapter describes compliance rollups. This chapter includes the following sections:

- ❑ *Overview to Compliance Validation*
 - ❑ *Compliance States*
 - ❑ *Bill Of Substances (Composition) Rollup*
 - ❑ *Bill Of Materials (Compliance) Rollup*
 - ❑ *Substances and Weights Rollups*
-

Overview to Compliance Validation

When compliance data has been gathered for items, manufacturer parts, and part groups, the compliance manager reviews the completed declarations; he needs a way to determine if they are ready for publication into the product record. And, after declarations are published, with their data written through to parts and part groups on BOMs, compliance managers need to examine and test BOMs to ensure that the assemblies and products are compliant.

This general process is called compliance validation, and the mechanics of compliance validation are fulfilled through compliance rollups. Rollups are built into the system, and they are a powerful feature of the PG&C solution.

Rollups are easy to execute and rollup results are seen in the user interface; understanding rollups and interpreting rollup results is the subject of this chapter. The business logic of rollups that is programmed “under the hood” is extensive; details of the logic and some use cases are found in Appendix A, “Internal Logic of Compliance Rollups.”

Current rollup information is always available from the BOM Compliance report. For more information about setting up this report, see “BOM Compliance Report” on page 3-3.

Use Cases

The term “compliance rollup” can be used in a general sense to refer to compliance validation, but Agile PG&C offers several specific rollups named by their use cases: the BOS or Composition rollup, the BOM or Compliance rollup, and the Substances and Weights rollup:

- ❑ **BOS or Composition rollup** – Produces the compliance of a composition with a given specification on a declaration. BOS rollups occur automatically when the declaration workflow’s status changes, except when moving from Pending status. Also, when a composition is imported into a manufacturer part, a rollup starts.
BOS rollups are discussed in “Bill Of Substances (Composition) Rollup” on page 8-6 and further detailed in “Internal Logic of BOS/Composition Rollups” on page A-1.
- ❑ **BOM or Compliance rollup** – Produces the compliance of a part or part group or assembly with a given specification. BOM rollups can be enacted at any time via manual rollups; the information is also refreshed throughout the system via scheduled rollups set by the administrator. (Settings in Administrator also govern the overall strictness of BOM rollups.)

BOM rollups are discussed in “Bill Of Materials (Compliance) Rollup” on page 8-7 and further detailed in “Internal Logic of BOM/Compliance Rollups” on page A-3.

- ❑ **Substances and Weights rollup** – Offers a special focus of “worst-case” compilation of weights of all substances in a top-level assembly for a given specification.

While the BOS and BOM rollups take place “within” the Agile system, the Substances and Weights rollup is activated by the **Rollup in Excel** process extension. This **Action** takes the user to a template in the Microsoft Excel-based Client, which must be set up by the administrator in order to access.

Substances and Weights rollups are discussed in “Substances and Weights Rollups” on page 8-10 and further detailed in “Internal Logic of Substances and Weights Rollups” on page A-5.

Declaration Classes in Rollups

Let us review the Declarations classes from the point of view of compliance rollups. Remember that a rollup is possible only when a specification is associated in a declaration; compliance states are always calculated in the context of a specification; so we say “rollups are by spec.”

Table 8-1:

Declaration class	Kind of specification	Kind of substance held	Kind of composition produced by declaration
Part Declarations	Any	N/A	Part composition
Substance Declarations JGPSSI Declarations IPC 1752-1 Declarations	Part-level specifications	Substance groups and substances	Substance composition
Homogeneous Material Declarations IPC 1752-2 Declarations	Homogeneous-material-level specifications	Subparts, materials, substance groups, and substances	Homogeneous material composition
Supplier Declarations of Conformance	Because SDOCs do not hold parts or substances, no rollups are possible.		

When and Why Rollups are Run

Rollups may be able to be started automatically or manually. Automatic rollups are scheduled by settings by the administrator, apply to all parts and part groups that qualify (see next section), and they are triggered to start per the information in the scheduler. Manual rollups are started by a user within a single declaration or part.

Table 8-2: How and when rollups are started

Use case	How rollup is started	Comments
BOM/Compliance rollups	Automatically	Per the schedule set by the administrator.
	Manually	In parts and part groups on the Compliance tab, Calculate Compliance button is enabled when compliance data is present (assuming the corresponding Specifications table is not empty).
BOS/Composition rollups	Automatically	Within declarations whenever the declaration changes status (except from Pending to non-Released status). Also, at the end of importing compositions into manufacturer parts, system starts the rollup.
	Manually	Declaration’s Actions menu includes Calculate Compliance .
Substances and Weights rollups	Manually	Part’s Actions menu includes Rollup in Excel . The rollup is fulfilled by the Agile > Run Scenario command in the integrated Excel spreadsheet. Note that Rollup in Excel may appear in the menu but the system goes to Excel only when compliance data is present in the part.

Parts Qualifying for Compliance Rollups

For scheduled rollups, there are several factors that “qualify” parts and part groups to be rolled up, that is, examined by the system for compliance. This can be thought of as occurring in two stages:

Stage 1 – Perform Compliance Rollup on Shippable Items:

- 1 All parts with Shippable Item flag set to Yes – this includes top-level assemblies (TLA), subassemblies, and leaf items (the last part of a branch in the BOM). The rollup is performed on the latest released revision of those items. If it is a TLA, the system performs the rollup for the entire BOM for the specifications in the TLA; if it is a subassembly, the system performs the rollup for the entire BOM for the specifications in the subassembly.

Note The specification(s) on any Shippable Item is propagated (added) to all parts that belong to the Shippable Item, if the specs are not already associated with those parts. (This applies to manual rollups: when **Calculate Compliance** button is clicked on a part or assembly, the system propagates the specs on that part or assembly to all parts/mfr.parts that belong to that assembly, if they are not there already.)

- 2 All Pending revisions of all Shippable Items. Note that the system does not perform rollups on previously released revisions of Shippable Items.

Stage 2 – Perform Compliance Rollup on Parts/PGs that are Flagged

- 3 Regardless of the setting of Shippable Item or the status of a revision, the system looks for all “flagged” parts/part groups, that is, those parts/part groups (with associated specifications) whose Need Compliance Check attribute has changed from No to Yes (on **<part/PG> Compliance** tab **Specifications** table). When Need Compliance Check field changes to Yes, the system is indicating that it is advisable to perform a rollup on that part.

Note On items (**Specifications** table), the Need Compliance Check attribute is not visible by default setting. See “Compliance-specific Fields” on page 8-5.

Several events cause Need Compliance Check to switch from No (meaning nothing has changed since the part was rolled up, it is still “up to date”) to Yes (meaning something changed and the part is no longer “up to date”):

- A new specification is added to an item, manufacturer part, or part group
- A specification’s declared compliance is changed on an item, manufacturer part, or part group
- A declaration/composition is released for an item or manufacturer part
- A declaration/composition is released for a part group that is associated with items or manufacturer parts
- A composition is manually imported to a manufacturer part
- A composition is archived (from an item, manufacturer part, or part group)
- An item or manufacturer part is associated to a part group that has a new specification (that is, not already on the item or manufacturer part).

Expected Time Required to Complete Systemwide Rollup

How long the systemwide (automatic) rollup task takes depends on the number PLM objects described by “Stage 1” and “Stage 2” above. If the number of shippable items is relatively stable from day to day (or other chosen period), the time required by the system to perform Stage 1 will be the same. A large volume of parts, say, numbering in the tens-of-thousands, leads to a greater volume of shippable items, causing Stage 1 to consistently run “long.”

For a company’s first run of the rollup task, Stage 2 might be expected to encounter many flagged parts in the system; for a large number of parts, Stage 2 might take a significant amount of time. On the other hand, from the second run going forward, many of those parts are now “cleaned up” – the factors listed above will not change from day to day for the bulk of parts – and do not require processing time in the system. With fewer changed parts in the system, Stage 2 will likely run faster each time. This may or may not make a noticeable difference in time, again depending on the overall volume of compliance-specific objects in the system.

Note There are many events that change the database information about parts and manufacturer parts (that is, through the work in other Agile solutions such as Product Collaboration) that may impact the compliance result of the part, even though these events are not PG&C-specific (and do not change the Need Compliance Check flag). A partial list of such events include:

- Adding a part or manufacturer part to OR removing it from an item (manually or through an ECO/MCO)
- Adding an item to OR removing it from an assembly (manually or through an ECO)
- Creating a new revision of an item
- BOM resolution change-based on pending revisions.

When Rollup was Last Run

After any kind of rollup (that includes a part) is run, near the top of the part you will see a **Compliance Calculated at** ____ time stamp, which gives the details of the last time the rollup ran and elapsed time since that point.

Because some companies have very large numbers of shippable items, the Item History logging during rollup has been removed, and instead the **Compliance Calculated at** ____ field on parts is updated.

Compliance States

There are five default compliance states within declarations and on parts and part groups. Compliance rollups use compliance states of compositions stored on parts or part groups to calculate the compliance state of larger assemblies. Only one of the compliance states is actually “compliant,” while four compliance states describe types of non-compliance.

Note With Release 9.2.1, the administrator can change the names of compliance states to fit the requirements of your company. However, because compliance states do not change their essential meaning, the new names should be readily associated with the default names listed below. Compliance states cannot be added or removed.

Agile PG&C defaults to the reporting of “worst-case” scenarios.

Worst-Case Priority of Compliance States

The priority of the compliance states when the system is set to a “worst-case” bias is:

- 1 **Non-Compliant** – this state takes highest priority in the worst-case bias
- 2 **Missing Info** – the state of “missing information” takes the second highest priority
- 3 **Waived** – the third highest priority state informs that a “waiver is in place”
- 4 **Exempt** – this is the lowest of the four non-compliant states (but see “Treat Exempt as Compliant in BOM Rollup Rule” below)
- 5 **Compliant** – in worst-case scenarios, Compliant is the lowest-priority compliance state.

Note Although you have access to all of the compliance states, your information suppliers can only declare Compliant or Non-compliant. They can also declare Exempt if exemptions are available, that is, if the specification has any listed exemptions.

How Compliance States are Ranked

The rule that governs the priorities of compliance states is this:

From any level in a BOS or BOM, the calculated compliance state of any higher level cannot be lower than the calculated compliance state of the current level.

So, if “level 7” of the BOM has a result compliance of Missing Info, none of the higher levels (top level of BOM, or level 1 through level 6) can be any worse than Missing Info; this makes sense, because level 7 has already taken all of the lower levels (level 8 through end of BOM) into account.

This means that if a part or assembly shows a Compliant state (5 in the list), you can conclude none of the part’s subassemblies have any of the non-compliant states (1–4) blocking the part from being in compliance.

That is the strength of the worst-case bias, that although you are always seeing the “bad news” about the compliance state of a BOM or BOS, the more you drill down and resolve problems, and the lower levels achieve the Compliant state, the “good news” begins to move up the BOM/BOS until an entire assembly can demonstrate integrated compliance up and down the bill of materials or bill of substances.

Treat Exempt as Compliant in BOM Rollup Rule

The administrator has an optional setting that permits BOM rollups to “overlook” the presence of Exempt states in arriving at the final compliance state of the top-level assembly in the Bill of Materials. Because Exempt is one of the ‘non-compliant’ compliance states, a part that is declared Exempt can render the entire assembly Exempt. By setting this rule to Yes, once a part is Exempt, the rule prevents “Exempt” from rolling all the way to the top of the assembly.

Of course, other parts in the assembly may have more serious non-compliance problems, so this setting does not bypass those states being rolled up.

Also note that the ability of the administrator to change the names of default compliance states makes it possible to change Compliant to, for example, “Compliant with possible Exemption.”

Compliance-specific Fields

The following definitions are general, can be slightly different depending on a BOS rollup or a BOM rollup.

- ❑ **Need Compliance Check (NCC)** – this field is set to No when no new data has come in since the last rollup; it switches to Yes when the system receives new data, indicating that a rollup could produce a new Result Compliance. When a new rollup is run (scheduled or manual), the NCC field reverts to No.

This field is not visible to the user on items. It is visible on manufacturer parts and part groups (**Compliance** tab > **Specifications** table). Whether or not the field is visible to you, the system still recognizes it and reacts to it in items.

- ❑ **Declared Compliance (DC)** – this field allows an information supplier to simply declare the compliance state of the substance. A Declared Compliance value always “trumps” a Calculated Compliance value. That is, the Result Compliance value field always take the state found in the Declared Compliance field. If the Declared Compliance field is blank, the value in Calculated Compliance is copied to the Result Compliance field during rollup.
- ❑ **Calculated Compliance (CC)** – this value in this field is derived from the system’s logic. The Calculated Compliance of one level in a BOS or BOM will most likely be the same value as the Result Compliance of the next lower level – unless there is a different value in the Declared Compliance field.
- ❑ **Result Compliance (RC)** – this field simply reflects the “winner” for that level of the BOS or BOM. If there is a Declared Compliance value on that level, that becomes the Result Compliance value. If there is no Declared Compliance value, the Calculated Compliance value on that level becomes the Result Compliance. Finally, the Result Compliance of a level of BOS or BOM becomes the Calculated Compliance of the next higher level.

Note When importing compositions and composition substances into manufacturer parts, at the end of import, the system performs a composition rollup. If the manufacturer part mass is needed during the rollup, unless the mass is given in the composition being imported, the system will not use the mass from manufacturer part **General Info** page even if there is a value in it.

With this background information, the rest of this chapter examines the three kinds of rollup in PG&C.

Bill Of Substances (Composition) Rollup

The top level of a Bill of Substances is the *composition*, or aggregate of part+rev for a given supplier for a named specification. The terms “BOS rollup” and “composition rollup” refer to the same process. Compositions are gathered or collected by declarations, or by direct import into manufacturer parts.

Kinds of Composition

- ❑ Pending Composition – a composition on an unreleased declaration
- ❑ Active Composition – a composition on a released declaration
- ❑ Inactive or Historical Composition – the old composition when it has been updated by a new declaration.

When Composition Rollups Occur

Validations within a declaration is the process of calculating compliance of the Bill of Substances within a composition and assigning a compliance state to the composition based on this analysis. This ensures that all contained data is kept up to date during the course of the RFI process.

Composition rollups can occur in these ways:

- 1 Within a declaration, a BOS rollup takes place automatically every time the declaration workflow advances one status, except from Pending to a non-Released status; so, change from Pending to Released, and all other advances from non-Pending status to another triggers the composition rollup.
- 2 In a declaration, when you manually click **Actions > Calculate Compliance**.
- 3 When you complete importing a composition to a manufacturer part, a BOS rollup is automatically triggered.

If a specification is not named on the declaration, the system uses the “All Spec” feature to, in effect, apply restrictions of all the specifications that have been entered into the system. (See ““All Spec” Use Case” on page 5-4.) Note that when there is no specification, no rollup occurs within the declaration.

BOS Hierarchy

Remember that the hierarchy of the Bill of Substance is:

- ❑ First or top level: Composition of a part or part group
- ❑ Second level: Subpart (note that a subpart may have child subparts)
- ❑ Third level: Material (homogeneous material)
- ❑ Fourth level: Substance Group
- ❑ Fifth level: Substance

Most Bills Of Substance will be a subset of these levels, for example, you may simply have a part with a few regulated substances. The hierarchy is important for understanding how the system structures its BOS analyses.

Important Fields

The pertinent fields at each level of the BOS are:

- ❑ **Calculated Compliance** – will be empty unless there has been a BOS rollup, in which case the system stores its rollup results here
- ❑ **Declared Compliance** – the information supplier entered this value to declare his compliance with the specification for each level of the BOS; it trumps same-level CC
- ❑ **Result Compliance** – populated and uneditable; DC value always wins; if there is no DC, then CC wins

- ❑ **Mass** – The mass of each level in the BOS.
- ❑ **Threshold Mass PPM** – this value comes from specifications for all substances contained in the specifications
- ❑ **Calculated PPM** – the PPM as the result of the division of the **mass** of two levels
- ❑ **Declared PPM** – can be used by the information supplier to enter the PPM values directly; can be used by the supplier to declare the mass at each level of the BOS. It supersedes the calculated mass in the rest of the rollups.
- ❑ **Reporting** – A read-only field, the value comes from the Reporting field on the associated specification Substance table for the same substance. The rollup only looks for substances that are marked as Mandatory in the spec.

Note Values are calculated for all appropriate fields whether or not those fields are visible to you (enabled by the administrator). In PG&C, the administrator can choose to make some things not-visible, but in rollups the system is “indifferent” to that factor, that is, it *always* takes non-visible fields into account. If you think there is information that is not visible that you need to see, see your administrator.

Compliance Validation for BOS Tree

We speak of **part-level validation** and **homogeneous material-level validation**, based on the setting of Validation Type field on the **General Info** tab of the associated specification (see “General Info” on page 5-2). These are the varieties of BOS rollups, from “lowest” to “highest”:

- Substance to substance group
- Substance or substance group to material, subpart, or part
- Material to subpart or part
- Subpart to part
- At Part level

Bill Of Materials (Compliance) Rollup

Once the compliance at the composition level is known, the compliance within a part or manufacturer part on a BOM can be calculated. We know that a composition has a declared and a calculated compliance. With these settings, the compliance rollup can calculate the compliance within a part or part group. The terms “BOM rollup” and “compliance rollup” refer to the same process.

The cases to consider are subunits of the BOM rollup:

- ❑ **Part Level Compliance validation:** Composition level to its parent (part or part group).
This is governed by the setting in Administrator for “Composition Rollup” set to Strict (default) or Relaxed.
- ❑ **AML Compliance validation:** AML to IPN (manufacturer parts to parts).
This is governed by the setting in Administrator for “AML Rollup” set to Strict (default) or Relaxed.
- ❑ **Item to Assembly level validation**
This is governed by the Administrator setting for “Treat Exempt as Compliant,” mentioned on page 8-5.

Rollup Fields

On parts and part groups, the Overall Compliance field is the worst-case compliance of all associated specifications. For example, if there are five specifications and four of them are compliant but one of them is not compliant on the part’s **Specifications** table, then the overall compliance is Not Compliant.

- ❑ **Summary Compliance** – in **Item > Manufacturers** tab > **Manufacturer Parts** table; this field has the same value as the Overall Compliance field on the corresponding manufacturer part **General Info** tab.

- ❑ **Shippable Item** – On items only, when the Shippable Item field is Yes, a flag is set that the system recognizes that a top-level assembly is ready for market and will be included in any scheduled rollup. During scheduled rollups, the system first looks for Shippable Items, on the second round it looks for all parts/part groups with one or more specifications that the Need Compliance Check field is Yes.
- ❑ **Exclude From Rollup** – On the other hand, when the Exclude From Rollup field is Yes, it sets a flag that the system recognizes to keep it out of any rollup. (More specifically, the part is checked for compliance, but the Yes setting in this field prevents the resulting compliance state from impacting its parent part’s compliance; in that way, it is “excluded from the rollup.”) The default for the Documents class objects is Yes. The default for the Parts class objects is No, but of course it can be set to Yes for any part of an assembly whose compliance state does not concern you. Again, this attribute applies only to items, that is, parts and documents.

BOM Rollup Evaluating Compliance States

For parts, part groups, or assemblies, the Composition Rollup rule and AML Rollup rule (set in Administrator) are generally set to Strict, which gives your BOM rollup results the ‘worst-case’ orientation. The setting of the rollup rule “Treat Exempt as Compliant” adds its influence to BOM rollup results. The effects of these rules are noted below.

If you detect your compliance rollups yielding unexpected (or undesired) results, see your administrator about the systemwide settings of the compliance rules.

A general case with emphasis on the two ‘strict/relaxed’ rules: let there be an assembly with multiple subassemblies. Assume one of the subassemblies has a compliance state of Exempt, another subassembly’s state is Missing Info, and all the other subassemblies are in the Compliant state. Can you predict the compliance state of the assembly?

If you refer to the list of compliance states (page 8-4), you see that the subassemblies that are Compliant will at some point contribute to the overall compliance of the assembly, but right now they are not going to “win” or influence anything. The Exempt subassembly is weighted, but the Missing Info subassembly is more weighted. At this point, the compliance state of the assembly is Missing Info. As soon as non-compliance is found in a lower level, all levels above it also become non-compliant.

Things *could* be altered if Treat Exempt as Compliant rule is set to Yes (its default is No); however, note that in this particular use case, the compliance state of the top-level assembly would still be Missing Info.

Part Level Validation – Rollup from Compositions to the Part or Part Group

This is governed by the Composition Rollup rule in Administrator. For each part or part group, this rollup evaluates all active compositions for the part across all suppliers for the particular specification being rolled up at the time.

The resulting compliance state is stored in the Calculated Compliance field (and possibly Result Compliance field) of the **Specifications** table of the part or part group for that specification.

The **Specifications** table also has a Declared Compliance field for each specification. This field allows a user to overrule the Calculated Compliance up to this point. This is used in the case where a company has put a waiver in place or has an application-based exemption for, say, medical devices

This validation does not happen automatically but depends on scheduled rollups or on the user launching a compliance calculation of the part or one of the part’s higher-level BOM parents.

Blank Specification Exception

If there is no composition for a given part/part group and specification, the system looks for an All Spec composition that came from a declaration with the same validation level as that specification’s validation level for that part or part group. The All Spec composition is a composition that was entered as a PPM/mass declaration without any specification attached. When it is published or imported, the system assigns it the as the All Spec composition. See “All Spec” Use Case on page 5-4.

AML Validation – Rollup from AML to Item

This is governed by the AML Rollup rule in Administrator. Strict setting, or worst case, means that as long as one of the manufacturer parts on the AML of the part is different than Compliant, then the part cannot be compliant. Relaxed setting, or best case, means that as soon as one of the manufacturer parts on the AML of the part is compliant, then the part is compliant, effectively reversing the compliance state priority list.

The resulting compliance state of the item across its AML is stored in the Calculated Compliance field (and possibly Result Compliance field) of the **Specifications** table on the item for that specification.

The **Specifications** table for that item also has a Declared Compliance field that allows a user to overrule the Calculated Compliance up to this point.

This validation does not happen automatically but depends on scheduled rollups or on the user launching a compliance calculation for the parent of the compositions or one of the parent's higher-level BOM parents.

Here are a few use cases illustrating how the rollup rules work.

Case 1 – AML Rollup rule is set to Strict and Treat Exempt as Compliant rule is set to Yes or No.

Item 1 – Not Compliant

Mfr.Part 1 – Exempt

Mfr.Part 2 – Not Compliant

Case 2 – AML Rollup rule is set to Relaxed and Treat Exempt as Compliant rule is set to No.

Item 1 – Exempt

Mfr.Part 1 – Exempt

Mfr.Part 2 – Not Compliant

Case 3 – AML Rollup rule is set to Relaxed and Treat Exempt as Compliant rule is set to Yes.

Item 1 – Compliant

Mfr.Part 1 – Exempt

Mfr.Part 2 – Not Compliant

So, if the mfr. part has a compliance state of Exempt and the 'Exempt' rule is set to Yes, the item is compliant.

Validation Rollup from Item to Assembly

This is governed by the Treat Exempt as Compliant rule in Administrator. The resulting compliance state is stored in the Calculated Compliance field (and possibly Result Compliance field) of the **Specifications** table on the item for that specification.

The **Specifications** table for that specification also has a Declared Compliance field that allows a user to overrule the Calculated Compliance up to this point.

This validation does not happen automatically but depends on scheduled rollups or on the user launching a compliance calculation for the parent of the compositions or one of the parent's higher-level BOM parents.

Please see "Internal Logic of BOM/Compliance Rollups" on page A-3 for more information.

Substances and Weights Rollups

A Design for Environment (DfE) use case requires hazardous substances and weights analysis. In Agile PG&C, a predefined Substances and Weights Rollup spreadsheet is opened in Microsoft Excel. You are asking, “On this top-level assembly (TLA), I want to do weights rollups on all substances per this specification.” Or, “Find me the worst case for each substance in terms of its weight.”

Note There is now a fully supported Japanese version of the Rollup in Excel template. Also, localized versions of the Rollup in Excel template are supported in Chinese, French, and German.

You perform substances and weights rollups after declarations have produced new data about the substances of your concern. The substances & weights rollup is run only on parts, that is, your company’s assemblies (not manufacturer parts). You can run it on the BOM + BOS tree of the entire assembly, including its Substances. Once the BOM+BOS data is exported to Excel, the rollup occurs there; you can change weights and do different “what if” analyses; however, this Excel spreadsheet is not connected back to Agile PG&C.

Be sure to understand the use of the Conversion Factor with substances (see “About Substance Groups and Conversion Factor” on page 4-3). Also see “Internal Logic of Substances and Weights Rollups” on page A-5 for more information.

Details of the Substances and Weights Use Case

As a background to the implementation of the Substances and Weights Rollup through the Microsoft Excel-based Client, you already know that the PG&C solution has built in the Compliance (BOM) Rollup, which automatically calculates whether parts are compliant, not compliant, missing information, and so forth. But a Weights rollup was not built *into* the system, and it was decided that the “Rollup in Excel” process extension was the best way to include a weights-based rollup feature in PG&C.

So, for a given assembly, when we choose from, for instance, an item’s **Actions** menu to **Rollup in Excel**, the system exports the entire assembly along with its Bill of Substances for each part/part group in that assembly. In the Microsoft Excel-based client, **Run Scenario** performs a worst-case rollup, adds up all the substances, and derives a unique list of substances that exist in the assembly; at completion it reports, “This assembly in worst-case has this much lead, this much cadmium,” and so forth. It will also tell you, “These are the contents of substances, when you compare any substance against a specification,” it looks at the substance value, look at the specification’s stated PPM allowance for that substance, informing you are this part is compliant or not compliant for that substance.

In a compliance rollup, this comparison takes place at the *individual substance* level for each item, whereas in the Substances and Weights rollup, it takes place at the *assembly* level with the rolled-up value of the same substance but from all the child items in the assembly.

Please note this discrepancy: when the system does a BOM rollup, the substance group and the base substance are treated the same; but when the system does a Substances & Weights rollup, the substance group and the base substance are treated distinctly since it does “exact match” comparisons. For instance, a spec could list a substance group called “Lead & Lead Compounds” but the system might be ‘confused’ between the base substance “Lead” and related substance “Lead Compounds.” In this case, the system could determine the substance Lead is “Compliant” even though it has not fully discerned the presence of all instances of the base substance Lead in the part.

- ❑ If none of the substances from specification exist in the composition (that is, there is not an exact match), then the system does not select either Compliant or Non-compliant. This is not a perfect situation, but the user at least knows that some information is missing in the system’s ‘understanding’ and can troubleshoot from there.
- ❑ If there is at least one substance or substance group that has PPM above the threshold, we have to select “This Part does contain substances listed in the referenced specification above the reporting limits as detailed below.”
- ❑ If there are multiple compositions for a part for the same Spec, the server will return all active compositions for a part, and the rollup logic follows the PWC rule (pessimistic worst case) among those active compositions (previously it only returned the Latest Released composition).

Running a Substances and Weights Rollup

To run a substances and weights rollup:

- 1 In an item, using the **Actions** menu, choose **Rollup in Excel**.
- 2 You are prompted to select a specification against which the rollup will be performed. Once you are in Excel, you see the **Reference Specification** field is populated with the specification you selected.

Of the radio buttons for **Scenario**, only “Pessimistic Worst Case” is available now, so that box is already checked.
The **Flags** radio buttons are not checked (by the system) until the rollup is run.
- 3 Microsoft Excel opens with the data of the part (**Object in Assembly**) displayed in the table (which can be altered according to your company’s needs).

You are prompted by a SaveAs dialog: you can accept the default name (Assembly Number/Name) or enter a new filename; and, you can accept the default location – Excel copies the files to a **Material Declaration Requirements** folder on the desktop – or enter a new location.

Saving the file enables you to re-open those files in another session.
- 4 Choose **Agile > Run Scenario**. The rollup is run.
- 5 When the scenario is run, one of the **Flags** radio buttons is checked, giving information about the part, either that the part does not contain substances listed in the Reference Specification, or that it does contain substances in the Ref.Spec. including which ones are above the reporting limits of the specification.

CHAPTER 9

Managing Your Suppliers

This chapter describes how to work with the Agile PLM Suppliers business object as well as the contact users who will complete RFI declaration requests. It includes the following sections:

- ❑ *Overview*
 - ❑ *Creating Compliance Suppliers*
 - ❑ *Creating and Adding Contact Users*
 - ❑ *Adding and Modifying Suppliers on a Part or Part Group*
-

Overview

A compliance manager creates declarations, sets up global supplier groups that can be leveraged by users with the appropriate roles, creates contact users who will complete RFIs, and submits declaration requests to the suppliers. Later the compliance manager evaluates the data received from the supplier and releases the declaration.

The first main topic is creating the Supplier business object. That is followed by creating the contact users. It is important to follow the documentation so certain pitfalls are avoided. For example, the supplier setting for Web Supplier and Lifecycle Phase, and the user setting for Response Edit Mode, need to be understood.

Creating Compliance Suppliers

Even if your administrator has created suppliers and contact users, you may have to create more.

Supplier Types

There are several “out-of-the-box” supplier types in Agile PLM, but these were tailored for RFQs and the sourcing process. Your administrator may have created another Supplier subclass for your company’s PG&C work, or may have reconfigured and renamed one of the existing supplier types. If you will be creating suppliers to provide compliance information in support of your company’s manufacturing process, there should be at least one predefined “compliance-oriented” subclass that you and other compliance managers can select.

Note “Web Supplier” is an attribute on **General Information** tab of a supplier, not a supplier type (subclass). See the Description of Web Supplier in Table 9-2 on page 9-3.

Supplier Lifecycle Phases

The lifecycle phase of the supplier can be either Active or Inactive.

Table 9-1: Supplier lifecycle phase

Status	Description
Active	The supplier is currently active and able to receive declaration requests/RFIs.
Inactive	The supplier is currently not active, and cannot be included in new RFIs.

Creating a Compliance Supplier

Use the Supplier Creation wizard to create a supplier organization.

To create a supplier:

- 1 Choose **Create > Suppliers** from the global menu bar. The Create Suppliers wizard appears.
- 2 From the **Supplier Type** drop-down list, select an appropriate supplier type. The default types are: Broker, Component Manufacturer, Contract Manufacturer, Distributor, and Manufacturer Representative.

Remember, the out-of-box names may have been changed by your administrator, and other supplier types may have been created for compliance-specific work.
- 3 There are several required fields. Specify a unique supplier Number and Name.

Select appropriate settings for Lifecycle Phase (Active, Inactive), Web Supplier (Yes, No), and Corporate Currency (choose from list).

Notes If a supplier is not active (that is, if Lifecycle Phase is set to Inactive), this supplier cannot be added to a declaration.

“Web Supplier” nominally indicates if a supplier logs in to Web Client to provide compliance information. See the Description of Web Supplier in Table 9-2 on page 9-3.

Also enter a value for Maximum Number of Contact Users. This number should be known to you in conjunction with the number of licenses purchased by your company that can be distributed over all your Supplier users.

If you click the **Continue Creation in Wizard** checkbox, you will be able to **Continue** through all aspects of a specification object. If you leave this checkbox blank, you will **Finish** the object creation process, and then you can add to the object by modifying it.

Click **Continue**.

- 4 Enter general information, including flex field details. Table 9-2 describes the fields that appear on the next pages of the wizard.

On any page of the wizard, you can click **Finish** to complete this operation. You can view the newly created supplier on the **General Info** tab.
- 5 Click **Next** to add contact users.
- 6 Click the other tabs to add additional information about the supplier. However, note that the default tabs – **PSRs**, **RFx Routing**, **Manufacturers**, and **Commodities** – have more to do with the PCM solution (unless the administrator has renamed and reconfigured these tabs).
- 7 On the **Attachments** tab, you can attach files and URLs to the supplier that you are creating. To attach a file, click **Add > File**. To attach a URL, click **Add > URL**. To find attachments by searching, click **Add > By Search**.
- 8 When you are finished adding attachments, click **Finish**.

To edit fields of a supplier, click the **Edit** button. You may not be able to edit the contents of some fields.

Supplier Fields and Attributes

As with other Agile objects, information about the supplier is displayed on a series of tabs. Each tab contains information about, or related to, that supplier.

Note Some tabs may not be enabled by your administrator.

By default, the **General Info** tab contains the fields listed in the following table. Agile administrators can add custom class and subclass fields to the **General Info** tab.

Table 9-2: General Info tab fields

Field	Description
Name	Name of the supplier
Supplier Type	Indicates the supplier subclass; configurable by the administrator.
Lifecycle Phase	Supplier is Active or Inactive
Number	Supplier number assigned to the supplier when you create it
DUNS	Industry-standard Data Universal Numbering System (DUNS) number
Display Name	Display name
Description	Text that describes the supplier; maximum length is set by Agile administrator
Web Supplier	Indicates if this supplier logs in to Web Client (Yes, which is then called “Web Supplier,” or No, which is then called “non-Web Supplier”). PLM now allows declarations to name either kind of supplier: a Web Supplier must have at least one associated Contact User (see next section); a non-Web Supplier may be named in the declaration with no associated contact users. However, it is still recommended that a declaration name a Web Supplier: PG&C carries and publishes the most useful information if a Web Supplier with associated Contact Users is named; for example, those contact users receive notifications. Note: PLM 9.2.1.3 has removed the requirement that a declaration have a supplier at all; but the administrator must have made the field ‘not required’.
Corporate Currency	Default currency for this corporation
Address	Address
City	City
Postal/Zip Code	Postal or ZIP code
Phone	Phone number
Fax	Fax number
URL	URL for supplier Web site
Maximum number of Contact Users	Maximum number of contact users that can be created for this supplier
Maximum Number of Licensed Contact Users	Maximum number of supplier users that can be assigned a concurrent user license
Maximum Number of Power Contact Users	Maximum number of supplier users that can be assigned a power user license

Buttons on the General Info tab

The **General Info** tab contains the following buttons:

- ☐ **Edit** — appears when the **General Info** tab is not in edit mode. To edit the **General Info** tab, click **Edit**.
- ☐ **Save** — appears when the **General Info** tab is in edit mode. To save the changes that you made to the tab while it was in edit mode, click **Save**.
- ☐ **Cancel** — appears when the **General Info** tab is in edit mode. To undo the changes that you made to the tab while it was in edit mode, click **Cancel**.

The following sections describe the additional tabs.

Creating and Adding Contact Users

The **Contact Users** tab defines which users can log in to Agile PLM to represent a compliance supplier. Supplier users have restricted privileges to the Agile PLM system that allow them to respond to RFIs.

An important setting for any contact user is the Response Edit Mode user preference. This field controls which user interface in Web Client that the contact user sees. When creating a new supplier user, the default setting for Response Edit Mode is Basic; this means the supplier user will see the “Basic Supplier Interface” when they log in to Web Client. (See the *PG&C Supplier Guide*.)

If a supplier’s contact user were to change the setting of Response Edit Mode from Basic to Advanced mode (specifically **Advanced Table Edit** or **Advanced Wizard Edit**), he is prompted to log out and log back in; when he logs in to Web Client, he will see the normal user interface, constrained by his assigned privileges.

The *PG&C Supplier Guide* urges supplier users to let the setting to Response Edit Mode remain as it was set by you (or the administrator). If the supplier user in the above situation does log in to Web Client (Advanced mode), he will have to click the My User Profile link and change Response Edit Mode field back to Basic, followed by logging out and logging back in to Web Client (Basic mode).

Contact users who work frequently with your compliance requests may be required to create declarations, and you may want your administrator to assign additional roles and privileges to enable them to work more effectively in Web Client (Advanced mode).

To add an existing supplier user or create a new supplier user that is associated with a supplier:

- 1 Open a supplier and click the **Contact Users** tab.
- 2 If the supplier user(s) for this supplier have been created, click **Add Users**. Use the Find and Select User dialog to search and add them to the supplier.

Note Power Users can be added to the **Contact Users** tab only if the **Maximum Number of Contact Power Users** field has been set to other than 0 (or blank) on the **General Info** tab of the supplier. Otherwise, only users with a Restricted user license can be assigned to a supplier.

If the supplier user(s) for this supplier have not been created, click **Create User**. The Create User dialog appears, open to the Select Subclass, Identify Name page.

- 3 Enter the username. Type the login password, and retype it. Fill in all the required fields. Click **Next**.

Note If your work to create a new user is blocked by the system at any point, it is likely your roles and privileges are insufficient to complete the task. See your administrator.

- 4 Enter user details. The user’s first name, last name, and email are required fields. Make sure the **Status** field is set to Active. Here are other fields you should consider changing:
 - **Role** — The user’s role assignments. This property determines a user’s access to the objects in Agile PLM from the point of discovery forward. The standard role for a supplier is Material Provider, but your administrator can work with you to assign greater privileges to specific supplier users.
 - **User Category** — Agile PLM has three types of user licenses: Power, Concurrent, and Restricted. Restricted users are people outside your company (such as suppliers) who are given limited access to the Agile PLM system. Power users are not subject to concurrency counts and can therefore log in at any time. Both Restricted and Power users can respond to RFIs, but only Power users can generate and view reports.
 - **Sites** and **Default Site** — Sites are not supported by PG&C.
 - **Authorized Ship-To** and **Home Ship-To** — These settings are not utilized by PG&C.

When you finish setting user details, click **Next**. The Define Preferences page appears.

- 5 Specify system, format, and display preferences. Click **Finish** to create the contact user.

The user appears on the **Contact Users** tab of the supplier.

Adding and Modifying Suppliers on a Part or Part Group

The **Suppliers** tab on parts and part groups enables you to add, edit, or remove suppliers on a commodity.

To add a supplier to a part or part group:

- 1 Open a commodity, click the **Suppliers** tab.
- 2 Click the **Add** button. The Add Suppliers wizard opens. From the returned rows, select and move a supplier that you want to add to the **Selected** list.
- 3 Click **OK**, then click **Save**. The selected suppliers are added to the part group.

To edit a supplier on a part or part group:

- 1 Open a part or part group, click the **Suppliers** tab.
- 2 Select the suppliers you want to edit, then click the **Edit** button.
- 3 Make the desired changes to the suppliers, then click **Save**.

To remove a supplier from a part or part group:

- 1 Open a commodity, click the **Suppliers** tab.
- 2 Select the suppliers you want to remove, then click the **Remove** button.
- 3 Click **OK** to complete the removal or **Cancel** to cancel the removal.

APPENDIX A

Internal Logic of Compliance Rollups

This appendix provides details of the business logic governing the various rollup procedures.

- ❑ *Internal Logic of BOS/Composition Rollups*
 - ❑ *Internal Logic of BOM/Compliance Rollups*
 - ❑ *Internal Logic of Substances and Weights Rollups*
-

The internal business logic described below is provided for those compliance managers who want to analyze precisely how the system arrived at calculated or result compliance states.

Internal Logic of BOS/Composition Rollups

Be sure you have read “Bill Of Substances (Composition) Rollup” on page 8-6; this information is supplemental to that section. This summarizes how the rollup works for BOS tree with various substance objects:

Rollup Logic for Substances

If there is a value in the Declared Compliance attribute, the rollup uses this value. If there is no value in the Declared Compliance, the system looks for Declared PPM and uses it for the rollup. If there is no value in Declared PPM attribute, the system looks for substance mass and part mass. If both values are available, the system calculates the PPM, compares it with threshold PPM, and sets the proper value in the Calculated Compliance attribute.

Rollup Logic for Substance Groups

If there is a value in the Declared Compliance attribute at the substance group level, the rollup uses this value. If there is no value in the Declared Compliance attribute at the substance group level, it looks for Declared PPM at the substance group level and uses it for the rollup. If there is no value in the Declared PPM at the substance group level, it looks for substance mass and conversion factor for all the substances in the substance group (the system does no rollup for substances within substance group, even if user provided Declared Compliance attribute value, it is ignored), then it calculates the base substance mass for each of the substances (substance mass multiplied by conversion factor), and it updates the calculated mass at the substance group level. If user provided the mass for immediate parent of substance group (it could be part or part group, subpart or material), the system calculates the PPM, compares it with threshold PPM for the substance group (it reads the threshold PPM from spec), and sets the appropriate value in the Calculated Compliance attribute.

Rollup Logic for Materials

If there is a value in the Declared Compliance attribute at the material level, the rollup uses this value. If there is no value in the Declared Compliance attribute, it looks at the children of the BOS tree under the material (it ignores the value in the declared PPM at the material level). If the BOS tree contains a substance group or substances, it uses the logic above to calculate the compliance. If there are multiple substance groups, the material is compliant, providing all the substance groups are compliant. If any one of the substance groups is missing info or not compliant, it affects the Calculated Compliance of the material.

Rollup Logic for Subparts

If there is a value in the Declared Compliance attribute at the subpart level, the rollup uses this value. If there is no value in the Declared Compliance attribute, it looks at the children of the BOS tree of the subpart (it ignores the value in the declared PPM at the subpart level). If the BOS tree contains materials, substance groups or substances, it uses the logic above to calculate the compliance. If there are multiple materials, the subpart is compliant, providing all the materials are compliant. If any one of the materials is missing info or not compliant, it affects the Calculated Compliance at the subpart level.

Rollup Logic for Parts and Part Groups

If there is a Declared Compliance, the rollup uses this value. If there is no value in the Declared Compliance attribute, it looks at the BOS tree for that part. If the BOS tree contains subparts, materials, substance groups and substances, it uses the logic above to calculate the compliance. If there are multiple subparts, the part is compliant, providing all the subparts are compliant. If any one of the subparts is missing info or not compliant, it affects the Calculated Compliance at the part level.

Special Cases that can Result in Missing Info Compliance State

Let there be five substances in a substance group; two of them do not have a conversion factor. The system calculates the substance group mass based on the other three substances, calculates the PPM, and compares it with the threshold PPM from the specification. If it is not compliant, it sets the Calculated Compliance to Not Compliant. If it is compliant, then it sets the Calculated Compliance to Missing Info, because the other two substances don't have a conversion factor.

Here are some other potential use cases where Missing Info can be returned as Calculated Compliance.

- ❑ The parent mass is not provided to calculate Calculated PPM, so the rollup has nothing to compare with Threshold PPM from the specification, so it results in Missing Info.
- ❑ If some of the mandatory substances from the specification are missing in the declaration, even if all the existing substances are compliant, the parent – either material or subpart or part – is marked as Missing Info.
- ❑ If the conversion factor for a substance under a substance group is missing, the system flags Missing Info at the substance group level.
- ❑ If the specification does not have any substances, Calculated Compliance is Missing Info.

Modifications in Release 9.2.1

The following are some modifications in Release 9.2.1:

- ❑ When importing substances under a substance group into a declaration's **<part/PG>** tab **> Substances** table, if there is no value in the conversion factor, the system copies the value from the substance group object to the declaration's **Substances** table, providing the substance exists in the substance group's **Substances** table.

- ❑ When importing substances into a declaration's <part/PG> > **Substances** table, the system copies the Threshold Mass PPM from the specification to the declaration's **Substances** table at which compliance is calculated. This permits the user to see the declared *or* calculated PPM and Threshold PPM from the specification and determine why the substance is compliant or not compliant.

Additional Information

Declared PPM values at the material level and subpart level are not considered by the rollup.

The calculated PPM is set at the leaf substance and substance group level only (the calculated PPM for substances within substance group are not calculated).

Declared compliance values for substances within substance group are not considered by the rollup.

The Calculated Compliance & Result Compliance for substances within substance group and for all the optional substance (either reporting set to Optional in the spec OR substances doesn't even exist in the spec) are not calculated.

In cases where the system uses the value in Declared Compliance field, it still updates the Calculated Compliance, but the Result Compliance is set to the value in Declared Compliance field.

In cases where the system uses declared PPM, it still calculates the calculated PPM if all the values (mass and parent mass) are available.

Corner Case

If the user provided declared PPM for substances within a substance group, the system calculates the substance mass based on the PPM and mass of the parent of the substance group (material, subpart or part), then it uses the same logic for substance group to calculate the compliance. If the parent mass is missing, then it uses the declared mass (if its available) to calculate the mass at substance group level.

Internal Logic of BOM/Compliance Rollups

Be sure you have read "Bill Of Materials (Compliance) Rollup" on page 8-7; the information below is supplemental to that section.

Compliance Calculation

Compliance Validation is a very taxing operation within Agile PLM. It is currently impossible for the system to catch up in a split second (like Excel) with all changes a user makes in the system that might impact compliance, although this is clearly the goal. The problem is clearly exponential. A compliance change to a manufacturer part will impact all items that have this manufacturer part in their AML. This in turn will impact all top level assemblies and all intermediary assembly levels that have that item in their BOM. In the worst of cases, a small change may require the calculation of the whole system.

Excel has the same problem when spreadsheets get too big. Therefore Excel has introduced the ability to turn automatic calculation off and to use a manual calculation.

PG&C has the same type of a user launched manual calculation option. On top of that PG&C has a timer-based automatic calculation that recalculates the compliance state of everything in the system based on some rules.

Automatic Calculation

The system performs a compliance rollup automatically in these cases:

- ❑ Per the schedule set by the administrator using Compliance Rollup rules;

- ❑ For all items flagged as Shippable Items, all Latest released revs and Pending revs (previously released revs of shippable items are not rolled up again);
- ❑ Every part/specification combination whose Needs Compliance Check attribute has changed to Yes.

Manual Calculation

Manual calculations always run in the foreground. The calculation happens for the currently selected rev of the item. The User can use the manual calculation to recalculate a back rev if needed.

Calculation and Publishing of Compositions

Compliance calculation does not happen automatically for an item or manufacturer part upon publishing data from a declaration to the part. When a composition is published, the specification for that composition is flagged with Need Compliance Check; it is set on the corresponding part's **Compliance** tab > **Specifications** table (again, it is not visible on items, but it is present and the system responds to it). Its compliance is evaluated either when the user launches the calculation or the next time the automatic compliance validation runs.

When there are changes in an assembly (that is, an ECO changes a BOM or an MCO changes a manufacturer part), there is no trigger to recalculate the compliance. If the item is marked as Shippable Item, the scheduled rollup recalculates the compliance; otherwise, you have to manually run the rollup to calculate compliance.

When importing specifications directly into a manufacturer part, after the Import procedure is completed, the system does a composition rollup and updates the Calculated Compliance and Result Compliance on the **Composition** table; however, it does not recalculate the compliance of all the specifications in the manufacturer part. It adds the specifications from the compositions being imported to the manufacturer part's **Specifications** table and sets the Need Compliance Check to Yes. Note that if the composition being imported does not have a specification, the system does not do a composition rollup after the Import.

Calculation and Specification Management

Adding a Specification

When a new specification is added to a part, it is flagged (on the part's **Compliance** tab > **Specifications** table) as Needs Compliance Check. When the calculation is run (either manually or automatically), the system performs these tasks:

- ❑ Looks at the Validation Level field of the new specification;
- ❑ Looks in the compositions for the matching specification composition (that is, a composition with the same specification);
- ❑ Then looks for the All-Spec composition with Composition Type matching the spec Validation Level.

Usually, when manually adding a new specification to leaf-level part/part group, it is likely that there is no composition with the same spec on it; so the system will look for All-Spec composition with Composition Type matching the spec Validation Level.

This use case covers when a customer currently requests full material disclosure declarations from his suppliers. The customer re-uses the information to revalidate specifications when the threshold values change or re-uses the information when new specifications are to be met. It removes the burden of asking the entire supply chain for a new compliance statement as soon as a specification changes or a new specification is adopted.

Removing a Specification

When removing a specification the overall part compliance calculation happens automatically since there is no way to flag anything as Needs Compliance Check.

If the removed specification is the last specification of the attached to the part, then the overall compliance state of the part is blank.

Approved Suppliers List (ASL) Check

If suppliers are managed on the **Suppliers** tab of the part or part group and the Compositions Rollup setting is Strict, then the system assesses the overall compliance of all the active compositions for this part, taking these factors into account:

- ❑ If there are missing active compositions for a supplier on the ASL and the setting is strict then the Compliance state should be at least Missing Info. It can get worse if one of the compositions that is present has a higher priority compliance state.
- ❑ This check only applies to leaf items, manufacturer parts, and subassemblies that have at least one composition.
- ❑ If the Compositions rollup setting is set to Relaxed, then the ASL rule does not apply.

EMS AML corner case

Several Agile customers attach an AML to the top-level assembly in order to keep track of the EMS manufacturers of their products. To take this use case into account, the system evaluates whether an assembly has an AML without any compositions for any of the specifications on the assembly.

This is the sequence that the system follows during rollup if an assembly has direct AML:

- 1 If the assembly has direct compositions, the system performs rollup based on those compositions.
- 2 If not, the system checks if there are direct composition at the AML level (direct AML at the assembly level). If there are compositions, the system performs rollup based on those compositions.
- 3 If not, the system performs rollup based on the assembly's BOM.

Internal Logic of Substances and Weights Rollups

These calculations describe how to roll up information from the lowest level of substances to the highest top-level assembly (TLA). The following levels can be identified within this “extended BOM,” that is, a BOM of parts combined with its constituent Bill of Substances (BOS). All the parts come first – the TLA, subassemblies, internal parts, and manufacturer parts. Then comes the composition for any given part – again, this is not an Agile object but an idea combining the part, a specification, and an information provider. Finally, the composition is the top level of the BOS, which comprises any subparts, homogeneous materials, substance groups, and base substances.

Not all extended BOMs have all the different levels. Of course the structure will further have one or more instances at every level within as dictated by the BOM structure and the numbers of part manufacturers for each manufactured part in the BOM.

Hierarchy of BOM and BOS

Top-level assembly (top level of the BOM) >

Subassembly >

Part >

Manufacturer part >

Active Composition (top level of the BOS: part + spec + supplier-specific) >

Subpart >

Material >

Substance Group >

Substance

Aggregate Rule

The “Aggregate” rule refers to the distinction between “aggregated substances” and “directly assigned substances.” Aggregated substances are substances that are implicitly assigned to a level through the rollups. If the substance is directly assigned at the level under observation, it is a directly assigned substance. But if a substance is assigned lower in the hierarchy – and through the rollups it becomes part of this particular level – then this substance is an aggregated substance.

In addition to the basic structure of an extended BOM, different types of rollups can be performed that make use of multiple manufacturers of the manufactured parts when calculations are made. The Pessimistic Worst Case (PWC) is the absolute worst of the worst that could ever be found in a BOM in terms of hazardous material content. In this scenario the BOM/BOS tree is the amalgamation of compositions of all available suppliers of each part in the BOM.

For example, if Mfr part A is available from three sources, the PWC of the BOM/BOS tree includes the amount of lead from the composition with the most lead of the three. As you can see, no such actual assembly is ever built. However, if the PWC case is compliant versus the threshold values that will be set by a given specification, then any configuration of the BOM in terms of the AML will be compliant. The pessimistic worst case trades realism for ease of use. It requires no user determination in terms of AML management to identify the worst mfr. part in an AML and to calculate this case.

Substance to Substance Group Level Rollup

For each substance in the group, there is a conversion factor that converts (by weight) the weight of the substance to a weight of the base substance (see column conversion factor to metal mass). In the end the base substance gets the sum of all the converted weights assigned as its weight. The base substance is the same as the aggregated substance.

When the system performs rollup from substance to substance group level, it calculates the weight of the base substance by examining all substances that belong to the substance group, taking the weight of each substance multiplied by its conversion factor, adding all substances together, and assigning it at the substance group level.

If a substance group has declared weight, that has precedence over the weight of the substances under that substance group. Excel Rollup takes the weight of the substance group.

Example:

Lead and lead compound:	Declared weight: 1 g	
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 2 g	Conversion factor = 0.866

- ❑ Substance group’s calculated weight = $(1 \times 1) + (2 \times 0.866) = 1 + 1.732 = 2.732$ g
- ❑ If substance group has declared weight, then its calculated weight is its declared weight = 1 g

Substance Group to Composition

When rolling up from substance group to composition, first the system does the rollup from substance to substance group. If there are multiple substance group and/or substances in a composition, it adds up all the substances weight and substance group weight and assign the sum to the calculated weight of the composition.

If a composition has declared weight, that has precedence over the summed weight of the substances and substance group. Excel Rollup takes the declared weight of the composition.

Example:

Composition	Declared weight: 5 g	
–Al	Declared weight: 3 g	Conversion factor = 1
–Lead and lead compound:		
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 2 g	Conversion factor = 0.866
–Cadmium and cadmium compound:	Declared weight: 2 g	
–Cadmium	Declared weight: 1 g	Conversion factor = 1

- Composition's calculated weight = $(3 \times 1) + (1 \times 1) + (2 \times 0.866) + 2 = 7.732$ g
- If the composition has declared weight, then its calculated weight is its declared weight = 5 g

Substance Group/Substance to Material Level Rollup

- 1 The system first creates a unique list of substances across the aggregated and directly assigned substances. In case the same substance appears both as a directly assigned as well as an aggregated substance, the system adds up the weights of both of those instances into one aggregated substance.
- 2 The system adds up all the weights of all the substances and assign this weight as the calculated weight of the material.
- 3 The system calculates the PPMs for each of the substances and populate the aggregated substances' calculated PPMs field with these values.

Note that the material might have a user-entered weight as well. In cases where the user makes such manual entries, the system uses the entered weight of the material instead of the calculated weight of the material. Also, declared weights take precedence over calculated weights.

Material to Subpart Level Rollup

The system first creates a unique list of substances and materials across the aggregated and directly assigned substances and materials. In case the same substance / material appears both as a directly assigned as well as an aggregated substance / material, the system adds up the weights of both of those instances into one aggregated substance / material.

- 1 The system adds up all the weights of all the substances / materials and assign this weight as the calculated weight of the subpart.
- 2 The system calculates the PPMs for each of the substances / materials and populate the aggregated substances / materials' calculated PPMs field with these values. Note that the subpart might have a user-entered weight as well. In cases where the user makes such manual entries, the system uses the entered weight of the subpart instead of the calculated weight of the subpart. Also, declared weights take precedence over calculated weights.

Subpart to Composition Level Rollup

The system first creates a unique list of substances and materials across the aggregated and directly assigned substances and materials. In case the same substance / material appears both as a directly assigned as well as an aggregated substance / material, the system adds up the weights of both of those instances into one aggregated substance / material.

- 1 The system adds up all the weights of all the substances / materials and assign this weight as the calculated weight of the composition.
- 2 The system calculates the PPMs for each of the substances / materials and populate the aggregated substances/ materials' calculated PPMs field with these values.

Note that the composition might have a user-entered weight as well. In cases where the user makes such manual entries, the system uses the entered weight of the composition instead of the calculated weight of the composition. Also, declared weights take precedence over calculated weights.

Composition to Part Level Rollup

In the Pessimistic Worst Case rollup:

- 1 The system creates a unique list of substances and aggregated substances for each of the compositions within the mfr. part/part by adding up the weights of like substances. For example, a composition can have lead directly assigned to it but lead could also be coming from lower levels of the BOS as an aggregated substance. In this case, the weight of lead is added to lead as an aggregated substance to have only one entry for lead.
- 2 The system makes a unique list of all the substances across all the compositions of the mfr. part, both the ones that are directly added as well as the aggregated substances that are the result from lower-level rollups assigned to the part and assign the highest weight of the substances found across the compositions to that substance.

The system assigns the lowest weight of all the compositions in the AML to the calculated weight of the mfr. part/part.

Composition to Manufacturer Part

When rolling up from composition to manufacturer part, follow the PWC rule. If a mfr. part has multiple compositions, get the lowest “composition weight” from among all the compositions and assign it to the mfr. part’s weight. Then, get a consolidated list of all substances from all compositions, and get the highest substance weight for each kind of substance at mfr. part level.

If a mfr. part has declared weight, that has precedence over the weight of the compositions under that mfr. part. Excel Rollup takes the declared weight of the mfr. part.

Example:

Manufacturer part	Declared weight: 4 g
–Composition_1:	Calculated weight = $(3 \times 1) + (1 \times 1) + (2 \times 0.866) = 5.732$ g
–Al	Declared weight: 3 g Conversion factor = 1
–Lead and lead compound:	
–Lead	Declared weight: 1 g Conversion factor = 1
–Lead Oxide	Declared weight: 2 g Conversion factor = 0.866
–Composition_2:	Calculated weight = $(4 \times 1) + 2 = 6$ g
–Al	Declared weight: 4 g Conversion factor = 1

–Cadmium and cadmium compound: Declared weight: 2 g

–Cadmium Declared weight: 1 g Conversion factor = 1

- Manufacturer part's calculated weight = 5.732 g, which is the lowest
- If manufacturer part has declared weight, then its calculated weight is its declared weight = 4 g

Manufacturer Part to Part Level Rollup

To go from the manufacturer part to the part level, the following logic applies:

In the Pessimistic Worst Case rollup:

- 1 The system creates a unique list of substances and aggregated substances for each of the manufacturer parts within the AML by adding up the weights of like substances. For example, a mfr. part can have lead directly assigned to it but lead could also be coming from lower levels of the BOS as an aggregated substance. In this case the weight of lead is added to lead as an aggregated substance to have only one entry for lead.
- 2 The system makes a unique list of all the substances across all the manufacturer parts of the AML, both the ones that are directly added as well as the aggregated substances that are the result from lower-level rollups assigned to the part and assign the highest weight of the substances found in the entire AML to that substance.
- 3 The system assigns the lowest weight of all the mfr. parts in the AML to the calculated weight of the part.
- 4 The system recalculates the weights of the substances in order to get the PPM values in sync with the assigned weight of the part.

When rolling up from manufacturer part to part, follow the PWC rule. If an item has multiple mfr. parts, get the lowest mfr. part weight from all the mfr. parts and assign it as the part weight. Then, get the consolidated list of all substances from all mfr. parts, and get the highest substance weight for each kind of substance at part level.

If part has declared weight, that is only for reference. Excel Rollup takes the calculated weight of the part.

Example:

Part	Declared weight: 1 g
–Manufacturer part_1	Calculated weight = 2.732 g
–Composition	Calculated weight = $(1 \times 1) + (2 \times 0.866) = 2.732$ g
–Lead and lead compound	
–Lead	Declared weight: 1 g Conversion factor = 1
–Lead Oxide	Declared weight: 2 g Conversion factor = 0.866
–Manufacturer part_2	Calculated weight = 2.866 g
–Composition	Calculated weight = $(2 \times 1) + (1 \times 0.866) = 2.866$ g
–Lead and lead compound	
–Lead	Declared weight: 2 g Conversion factor = 1
–Lead Oxide	Declared weight: 1 g Conversion factor = 0.866

- Part's calculated weight = 2.732 g, which is the lowest
- Lead and lead compound's calculated weight = 2.866 g, which is the highest

More on How Mfr Part to Part Works

If part has its direct composition and composition from manufacturer parts, treat the direct composition as manufacturer part, and apply PWC rule.

Example:

Part

–Composition	Calculated weight = $(1 \times 1) + (1 \times 0.866) = 1.866$ g	
–Lead and lead compound		
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866
–Manufacturer part_1	Calculated weight = 2.732 g	
–Composition	Calculated weight = $(1 \times 1) + (2 \times 0.866) = 2.732$ g	
–Lead and lead compound		
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 2 g	Conversion factor = 0.866
–Manufacturer part_2	Calculated weight = 2.866 g	
–Composition	Calculated weight = $(2 \times 1) + (1 \times 0.866) = 2.866$ g	
–Lead and lead compound		
–Lead	Declared weight: 2 g	Conversion factor = 1
–Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866

- ❑ Part's calculated weight = 1.866 g, which is the lowest
- ❑ Lead and lead compound's calculated weight = 2.866 g, which is the highest

Part to Assembly

When rolling up from part to assembly, follow the Aggregate rule. If an assembly has multiple items, sum the weights of all items and assign it to the assembly weight. Likewise, get the consolidated list of all substances from all the items and get their total weight.

If assembly has declared weight, that is only for reference. Excel Rollup takes the calculated weight of assembly.

Example:

Assembly	Declared weight: 1 g	
–Part_1	Calculated weight = 2.732 g	
–Composition	Calculated weight = $(1 \times 1) + (2 \times 0.866) = 2.732$ g	
–Lead and lead compound		
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 2 g	Conversion factor = 0.866

-Part_2	Calculated weight = 2.866 g	
-Composition	Calculated weight = $(2 \times 1) + (1 \times 0.866) = 2.866$ g	
-Lead and lead compound		
-Lead	Declared weight: 2 g	Conversion factor = 1
-Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866

- Assembly's calculated weight = $2.732 + 2.866 = 5.598$ g
- Lead and lead compound's calculated weight = $2.732 + 2.866 = 5.598$ g

More on How Part to Assembly Works

If an assembly has direct compositions and compositions from BOM, follow the aggregated rule.

Example:

Assembly

-Composition	Calculated weight = 1.866 g	
-Lead and lead compound		
-Lead	Declared weight: 1 g	Conversion factor = 1
-Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866
-Part_1	Calculated weight = 2.732 g	
-Composition	Calculated weight = 2.732 g	
-Lead and lead compound		
-Lead	Declared weight: 1 g	Conversion factor = 1
-Lead Oxide	Declared weight: 2 g	Conversion factor = 0.866
-Part_2	Calculated weight = 2.866 g	
-Composition	Calculated weight = 2.866 g	
-Lead and lead compound		
-Lead	Declared weight: 2 g	Conversion factor = 1
-Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866

- Assembly's calculated weight = $1.866 + 2.732 + 2.866 = 7.464$ g
- Lead and lead compound's calculated weight = $1.866 + 2.732 + 2.866 = 7.464$ g

Another Example of How Part to Assembly Works

If an assembly has direct compositions, compositions from MPN and also compositions from BOM, follow PWC rule between direct-compositions and MPN-compositions. Between the result and the BOM-compositions, follow the aggregated rule.

In the following example, first the Composition and Mfr Part data is assessed; then this is combined with the two parts' composition data.

Example:

Assembly

–Composition	Calculated weight = 1.866 g	
–Lead and lead compound		
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866
–Manufacturer part		
–Composition	Calculated weight = 1.5 g	
–Lead and lead compound	Declared weight: 1.5 g	
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866
–Part_1		
–Composition	Calculated weight = 2.732 g	
–Lead and lead compound		
–Lead	Declared weight: 1 g	Conversion factor = 1
–Lead Oxide	Declared weight: 2 g	Conversion factor = 0.866
–Part_2		
–Composition	Calculated weight = 2.866 g	
–Lead and lead compound		
–Lead	Declared weight: 2 g	Conversion factor = 1
–Lead Oxide	Declared weight: 1 g	Conversion factor = 0.866

First, get the ‘middle’ data from “Manufacturer Part” and “Composition”:

- Mfr. Part Composition weight: 1.5
- Lead and lead compound wt: 1.866

Then, separately add this ‘middle’ data to the composition data for Part 1 and Part 2:

- Assembly’s calculated weight = $1.5 + 2.732 + 2.866 = 7.098$ g
- Lead and lead compound’s calculated weight = $1.866 + 2.732 + 2.866 = 7.464$ g

Notes

Multiple composition

If there are multiple compositions for a part for the same Spec, the server returns all *active* compositions for the part, and the rollup-logic follows the PWC rule among those active compositions.

Level, Type, Declared PPM, Declared weight, CAS Number

They are populated from “Data” sheet to “Substance And Weight Rollup” sheet after running scenario. In Rel. 9.2.1.3, it has value after running the scenario, but the value may not be correct.

Rollup Rules

When there is at least one substance OR substance group, that has PPM above the threshold, we have to select the “This part does contain substances listed in the referenced specification above reporting limits as detailed below,” because the moment one substance or substance group is not compliant, the whole part is not compliant. That’s not true the other way, that is, only if all the substances are compliant, the part becomes compliant.

The substance group and the base substance are not treated the same. For example, if the composition has base substance and the specification has substance group, the system does not use the PPM of base substance to compare with the Threshold PPM of the corresponding substance group in specification.

For the UOM, when open the rollup Excel, the mass value is exported and auto converted, using the standard UOM.

If Quantity value is Null or non-numeric in Excel, when do rollup system returns proper message. There is no cell highlighting and Quantity can have a non-numeric (string) value.

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