

PTC® Live Global

CUST 329 - Product Analytics Materials Compliance Update

Jim Sweeney
Senior Director, Solution Management

June 10, 2015





Jim Sweeney

Senior Director Solution Management

19 years with PTC

Responsible for PTC's solution management for Windchill
Product Analytics and Component & Supplier Management

BS Mechanical Engineering – UMass Lowell

MBA – Babson College

Fun Fact – first professional job was as a Combustion Engineer

Let it go, Materials Compliance never bothered me anyways!



Motorola Establishes a Scalable, Holistic Approach to Product Regulations with PTC Materials Compliance



As a leading manufacturer of mobile devices, Motorola must address product-focused regulations, including the Conflict Minerals law, REACH, and RoHS.

The PTC Materials Compliance solution has enabled Motorola to reduce its supplier data collection cycle from 28 days to just 3 days, thereby decreasing aggregate compliance costs and safeguarding the Motorola brand.

“ We can have a compliance verdict for any regulation, anywhere in the world, for any component, subassembly, or product we produce. And we get used to looking at the problem in a consistent, thorough way. ”

– **Bill Olson**

Director, Office of Sustainability & Stewardship, Motorola



Industry Challenges and Requirements

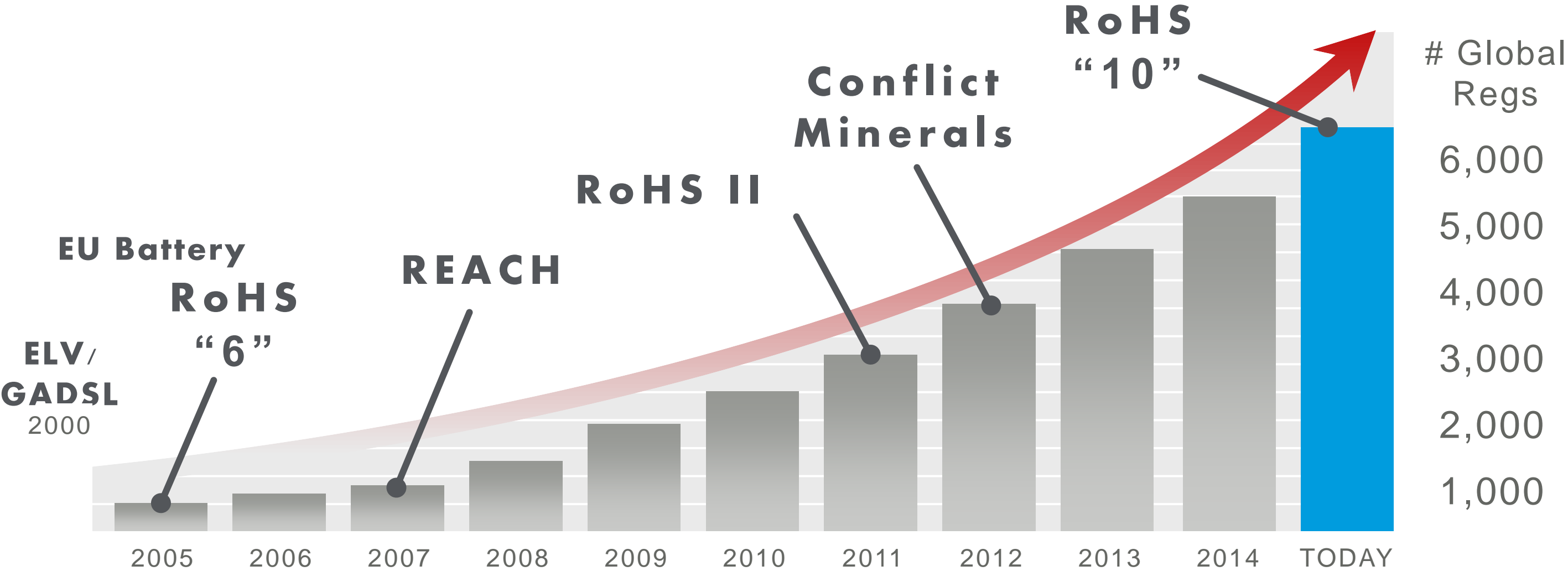
Global Product Regulations on the Rise!

Companies facing increasing ...

Regulatory Complexity

Effort to Fulfill Obligations

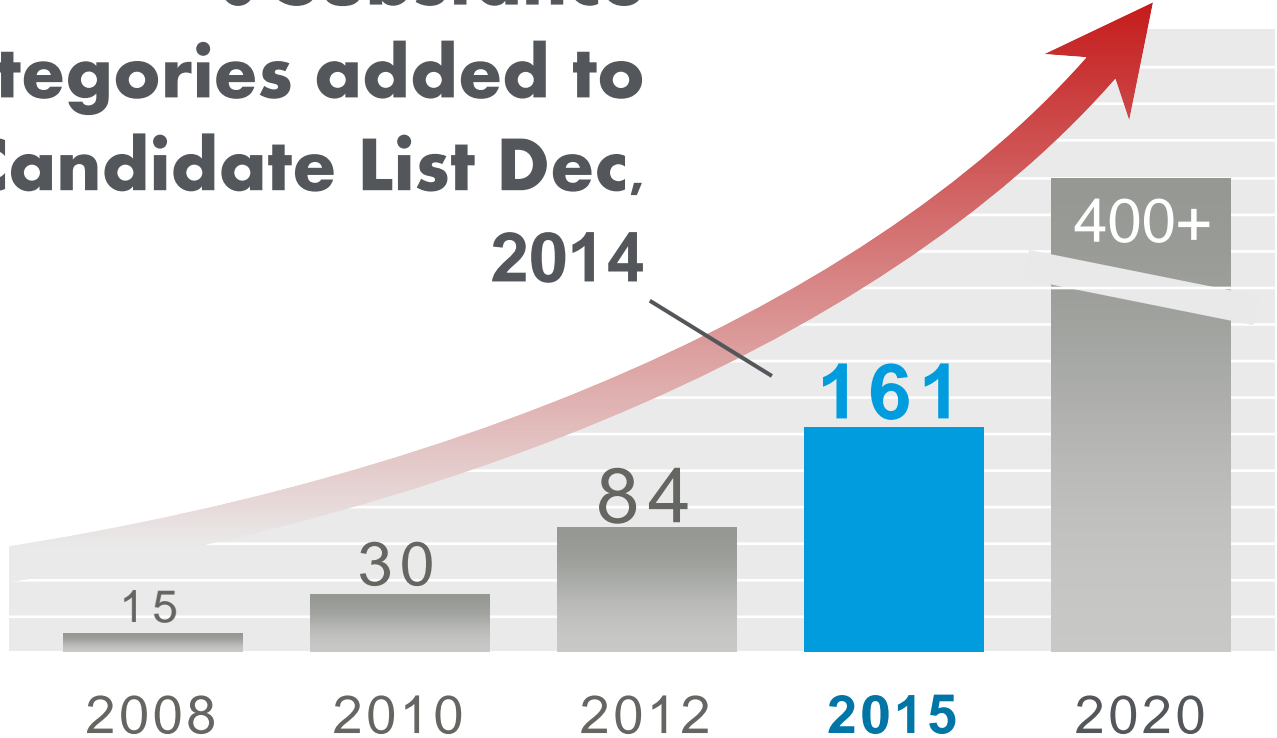
Customer Demands



Source: Compliance and Risks

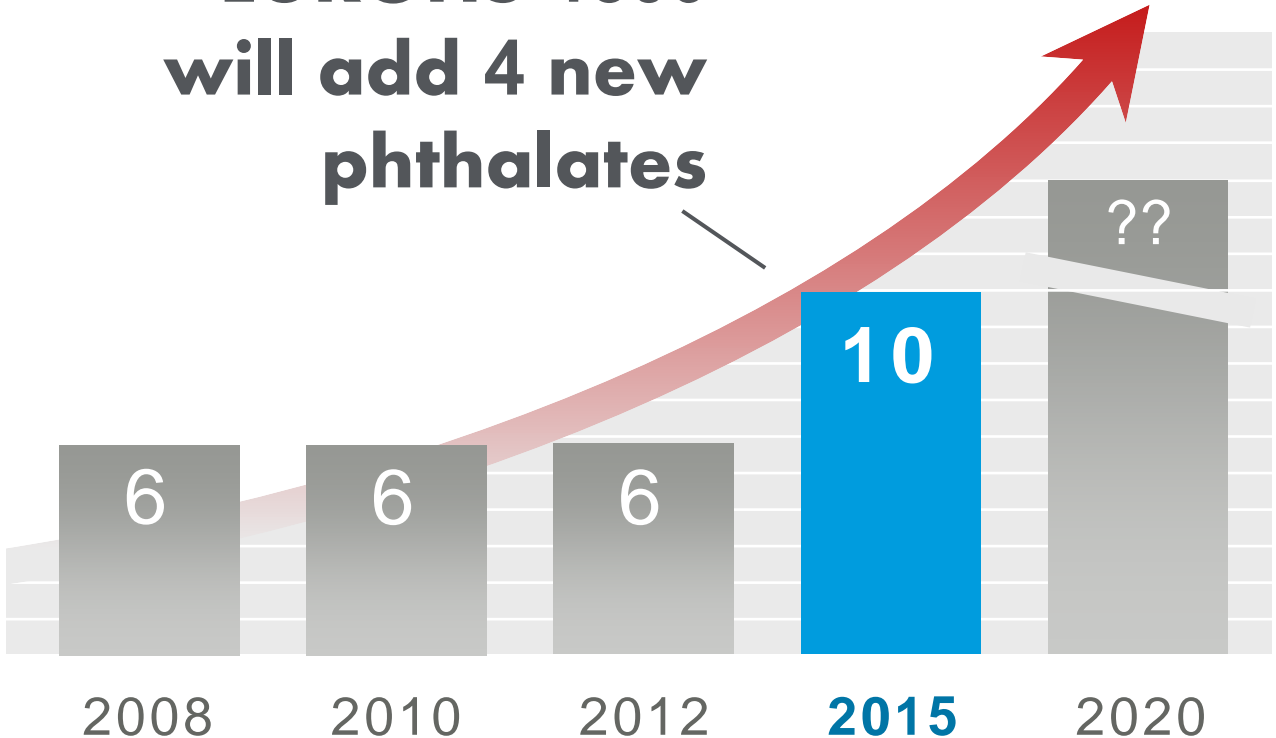
REACH Keeps Growing

6 Substance Categories added to Candidate List Dec, 2014



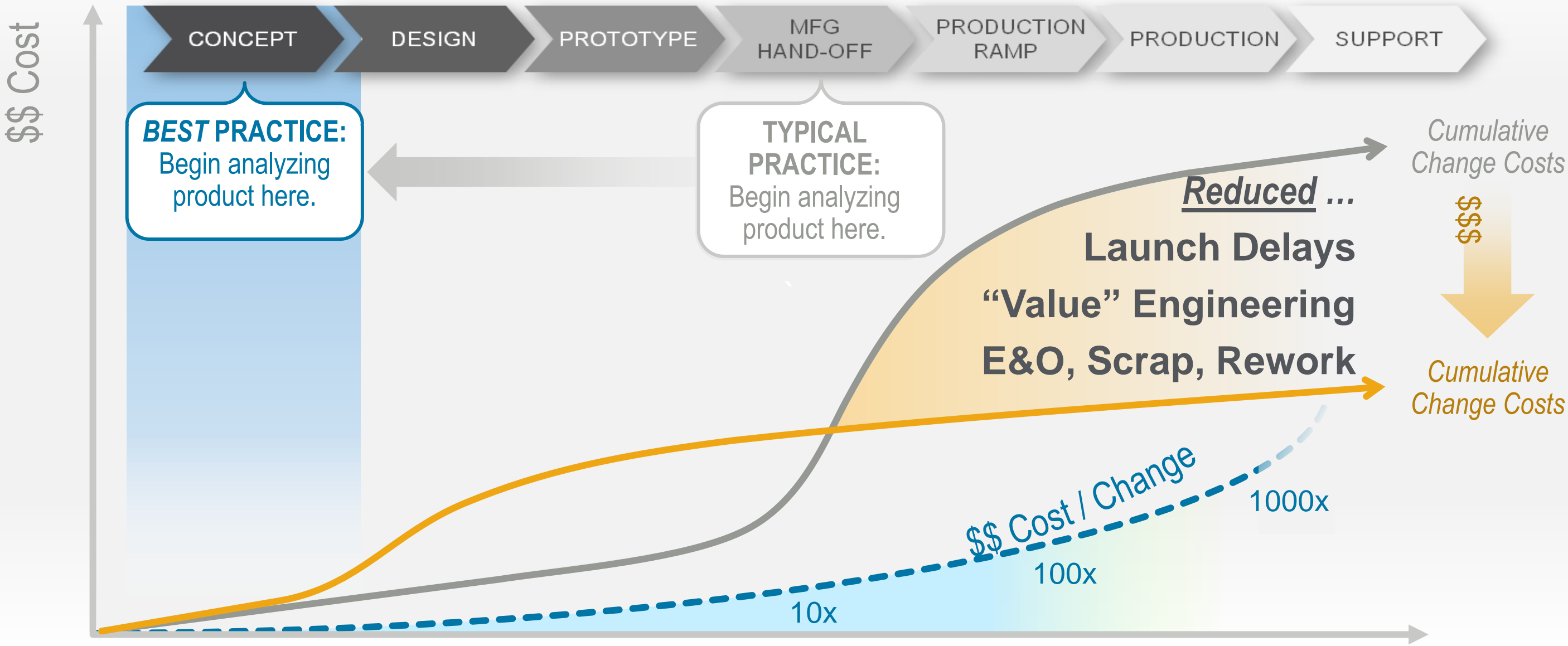
Now RoHS starting to Grow

EUROHS-1506 will add 4 new phthalates



How Our Leading Customers Approach the Problem

Integrate risk and compliance requirements beginning early in product development and throughout the product lifecycle



Materials Compliance with PTC Windchill Product Analytics



1

TRACK

regulatory and customer **requirements** e.g. Conflict Minerals, RoHS, REACH

2

COLLECT

and manage supplier **disclosures** and internal product data

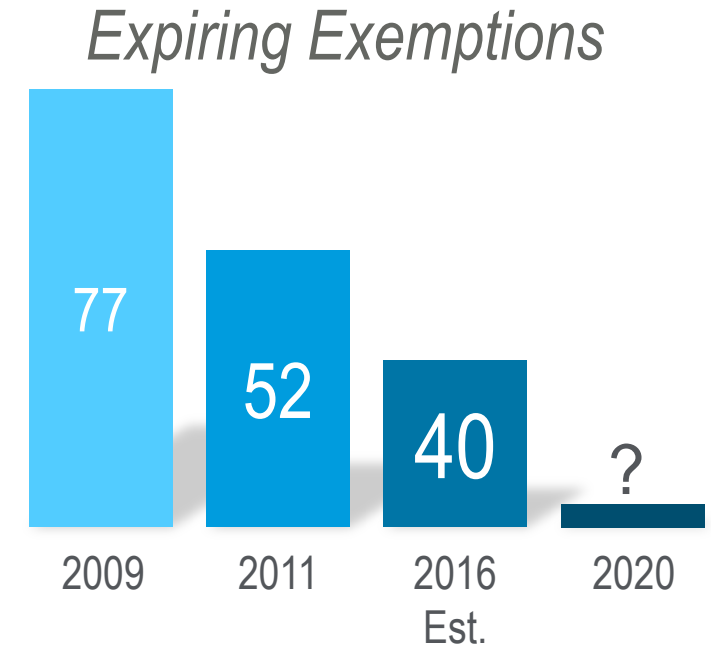
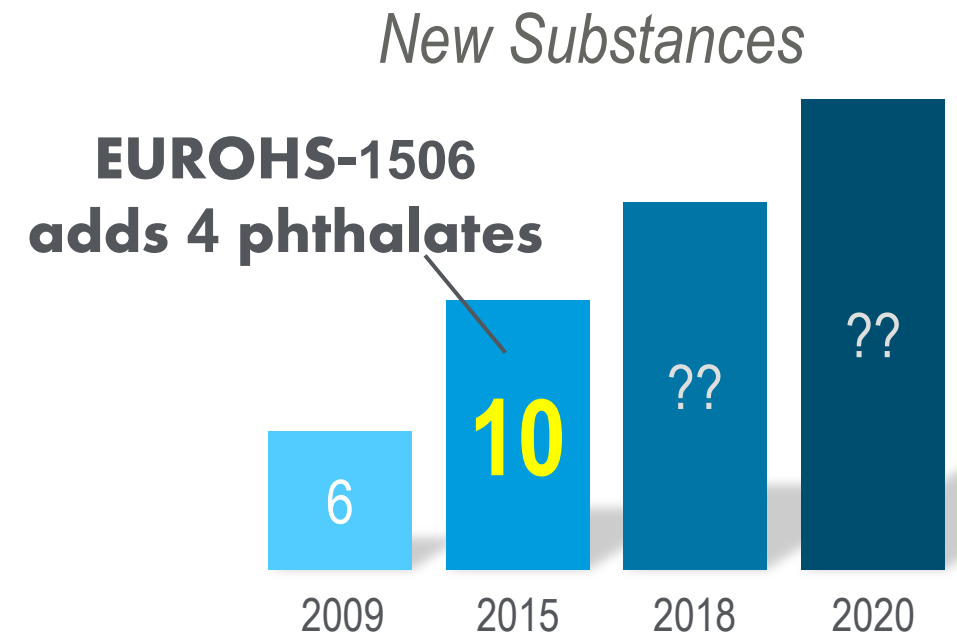
3

ASSESS AND REPORT

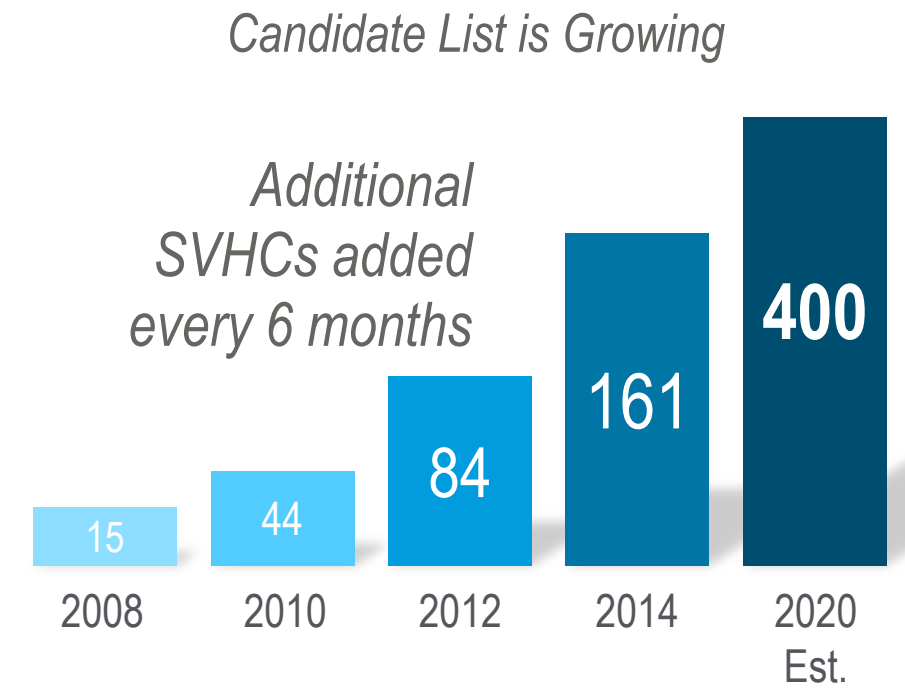
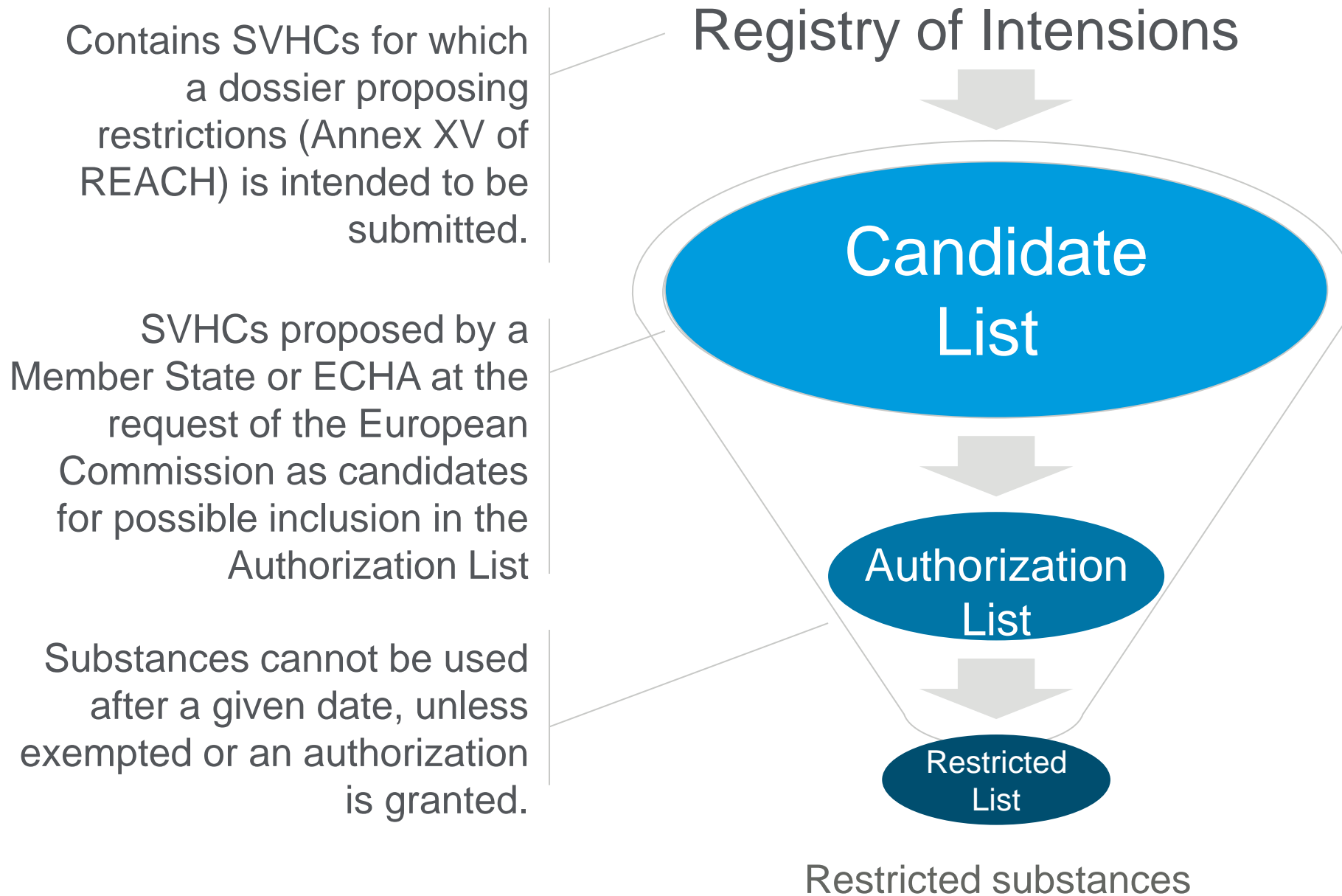
compliance status status and communicate results to internal stakeholders, customers, and regulators

2011 Recast (RoHS 2) added significant obligations for reporting & evidence retention

- **2002/95/EC (RoHS 1)**
 - Bans/limits use of 4 heavy metals and 2 flame retardants
 - Restrictions at homogeneous material level
 - Numerous regional variations: China, Korea, Japan, US state-by-state ...
- **2011/65/EU (RoHS II – EU RoHS Recast)**
 - Increases obligations for reporting and evidence retention
 - Declaration of Conformity requirements for CE Mark
 - Obligation to inform member states if non-compliant product suspected and potentially recall such product from market
- **EUROHS-1506 Expected (RoHS II update)**
 - Adds 4 phthalates, declarable in 2015, restricted by 2019
- **“RoHS 3” expected 2019**



Obligation to report Candidate List substances within 45 days of inquiry



Source: PTC, TechClarity

- “Dodd-Frank” Section 1502 – Conflict Minerals

- Governs SEC registered companies who use “Conflict Minerals” (3TG)



- Compliance Requirements – SEC Final Rules

- Final Rules describe applicability and requirements for *supplier inquiry, due-diligence, reporting & auditing*
- “Corporate Officer” must sign public SEC filing



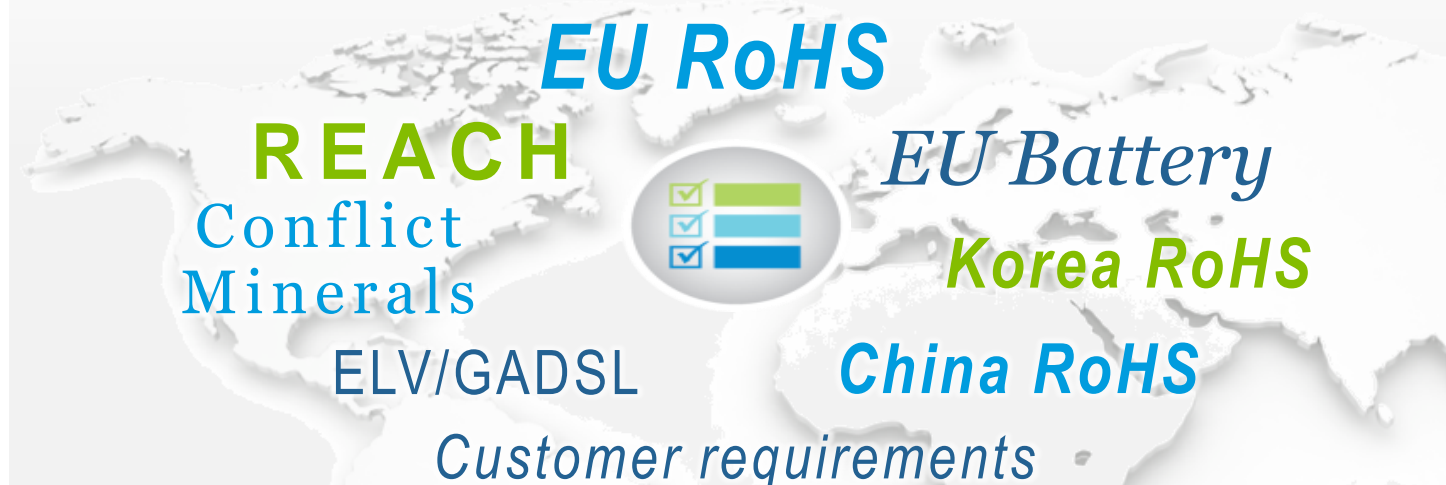
Regulation updates are easily downloaded and installed

- Pre-packaged, up-to-date compliance specifications
 - Conflict Minerals
 - RoHS 2
 - REACH
 - EU Battery Directive
- Create & manage Customer specifications
 - Define substance thresholds for Parts (article) or Homogeneous materials

BENEFITS

- Reduce reporting costs **75-95%**
- Reduce regulation management costs **25-33%**
- Reduce risk of fines and lost revenue

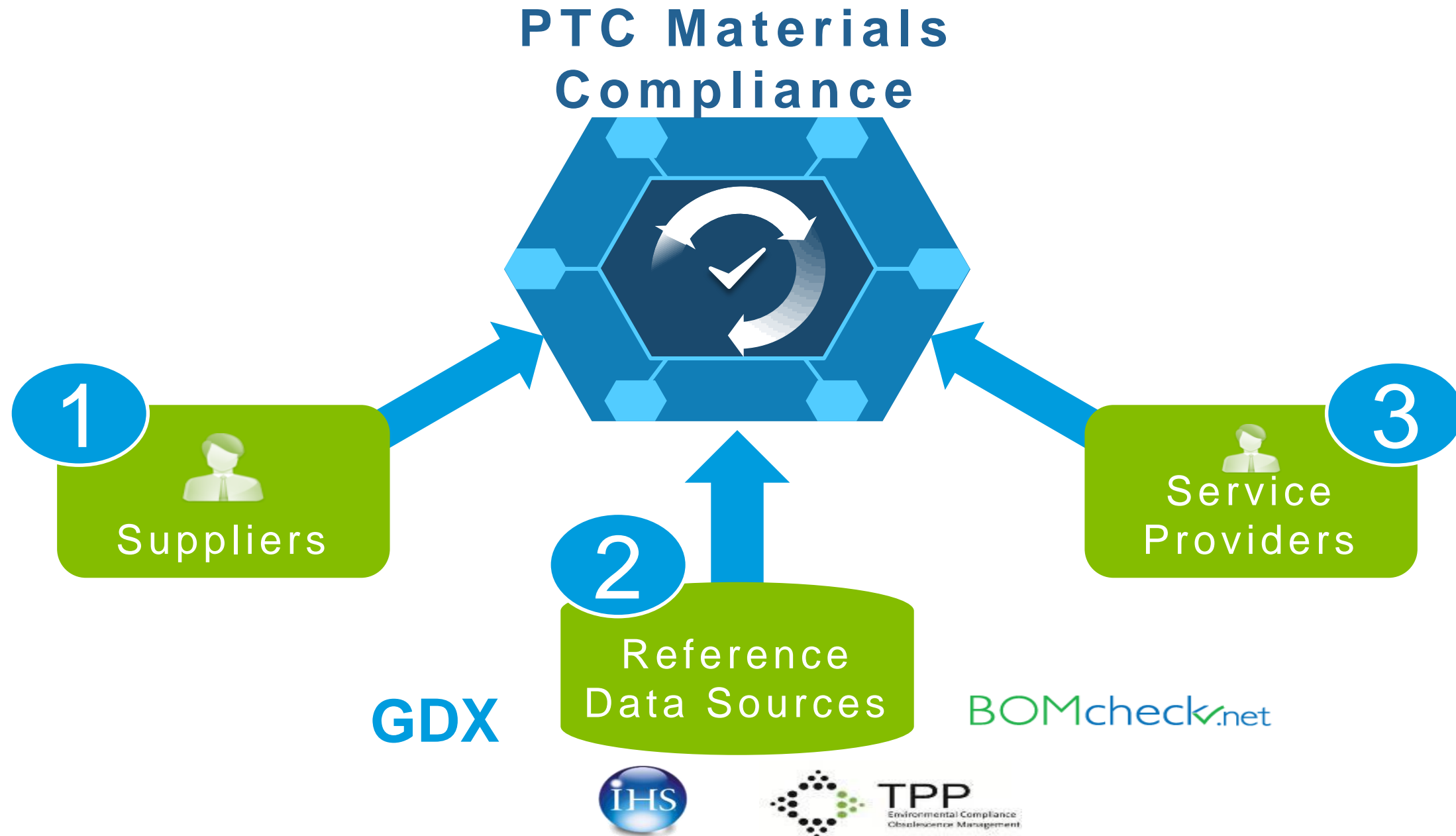
Stay current on compliance reporting obligations



Compliance Specifications Overview

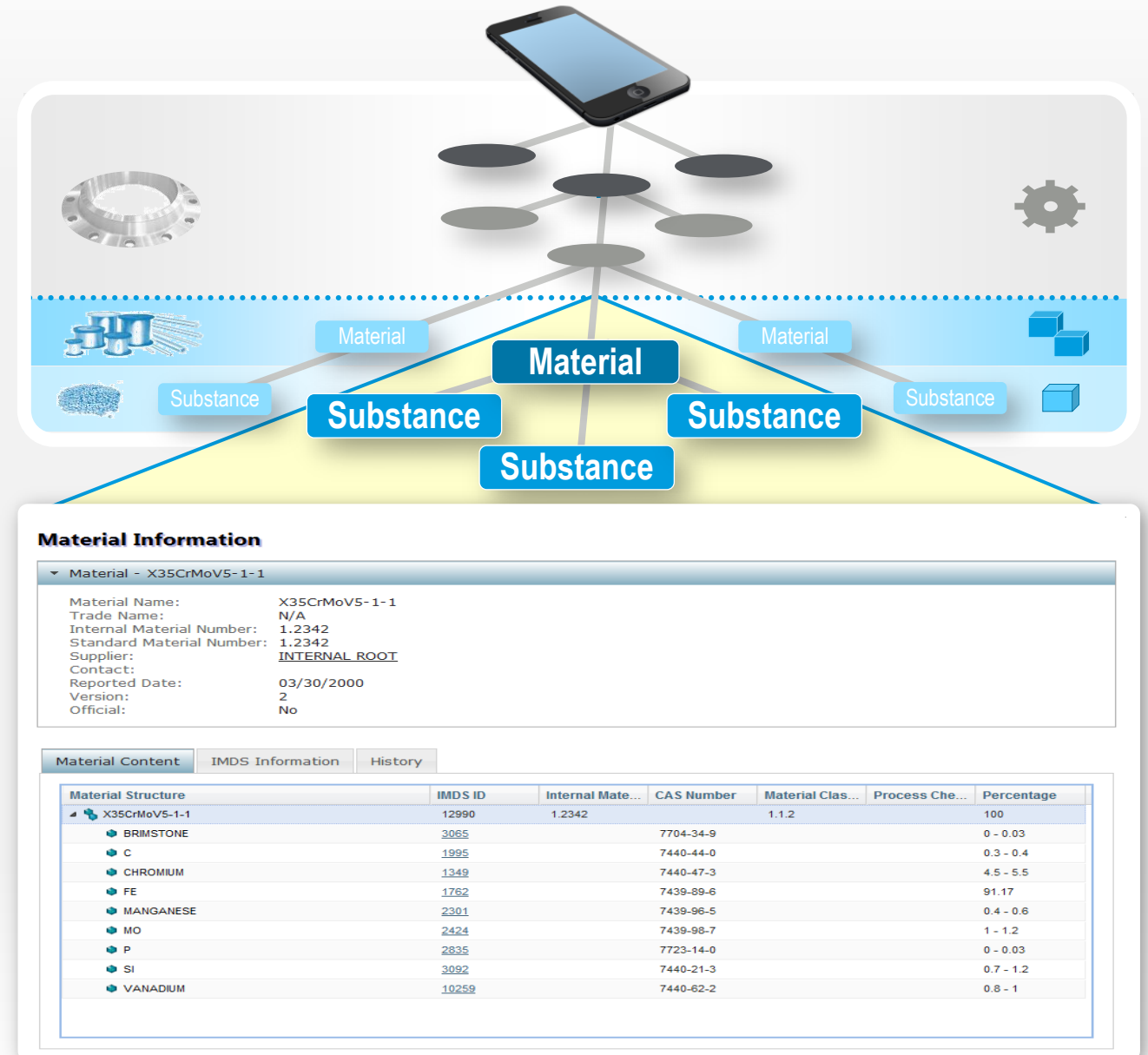
Compliance Specification	Date Issued	Active	Long Name
1. ZH_ROHS ALL, Revision A	03/01/2007	✓	China RoHS
2. CONFLICTMIN ALL, Revision A	2011/534/EU		Substance Category (6)
3. EC BATTERY REPORTABLE, RESTRICTED			CADMIUM AND CADMIUM COMPOUNDS
4. EC BATTERY RESTRICTED			HEXAVALENT CHROMIUM
5. ELV AUTOMOTIVE			LEAD AND LEAD COMPOUNDS
6. ELV AUTOMOTIVE			MERCURY AND MERCURY COMPOUNDS
7. EUROHS GENERAL, Revision A	2011/534/EU		POLYBROMINATED BIPHENYLS (PBBS)
8. EUROHS MEDICAL, Revision A			POLYBROMINATED DIPHENYL ETHERS (PBDES)
9. GADSL DECLARABLE, RESTRICTED			Substance Category (6)
10. GADSL RESTRICTED			CADMIUM AND CADMIUM COMPOUNDS
			HEXAVALENT CHROMIUM
			LEAD AND LEAD COMPOUNDS
			MERCURY AND MERCURY COMPOUNDS
			POLYBROMINATED BIPHENYLS (PBBS)
			POLYBROMINATED DIPHENYL ETHERS (PBDES)
	2011/65/EU		Substance Category (6)
			CADMIUM AND CADMIUM COMPOUNDS
			HEXAVALENT CHROMIUM
			LEAD AND LEAD COMPOUNDS

Use multiple data collection methods to optimize coverage and minimize cost

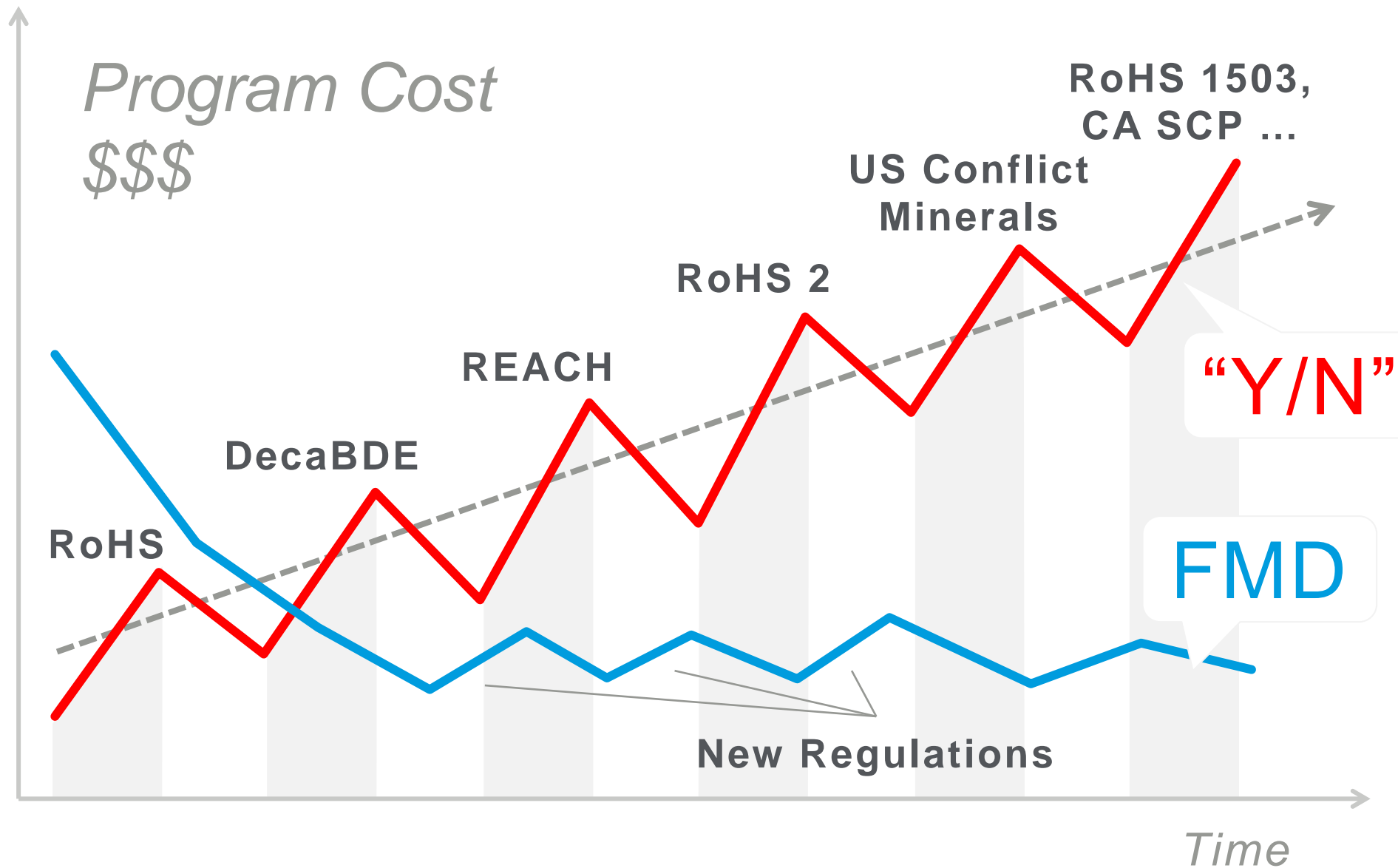


- Manage the substance composition of materials
 - View Substance composition of Materials
 - Create and manage Materials in a central repository
 - Assign Suppliers to Materials
 - Manage the Materials approval and release process
- Create part declarations
 - Create Full Material Content Disclosures (FMD) for “Make” or “Design” parts
 - Materials library for standard materials simplifies the “self-declaration” process
 - Re-use substance lists for standard materials minimizing redundant data entry and errors

Central repository for Materials and Substances



Comparing Full Material Content vs. “Yes/No” Disclosures



“Y/N” Questionnaires:

Resources required to meet new substance restrictions manually or using certificates of compliance follow an ever-increasing sawtooth over time

Full Material Declarations:

With FMD, initial investment is higher, but quickly falls since FMD reduces need to re-poll suppliers every time regulations changes.

Examples of additional benefits of acquiring full material content

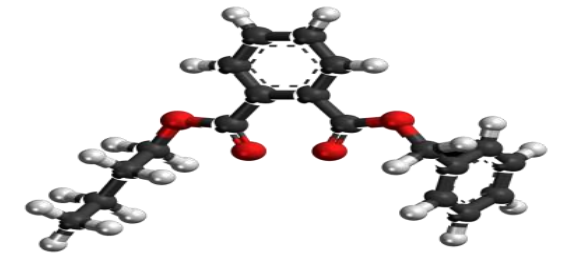
Recycling Recovery



“ There’s over 120 oz. of gold in this batch of equipment being sent to the recycler. Make sure we get a credit. ”



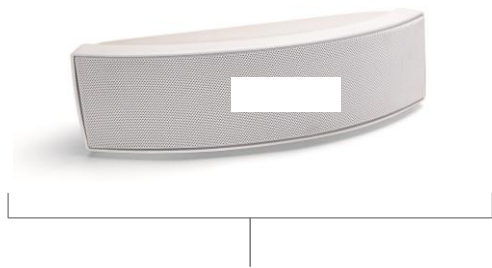
Identify Presence of Chemicals



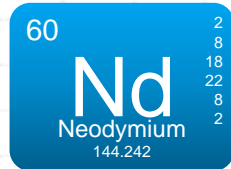
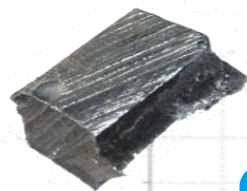
“ Our patient is highly allergic to Benzyl Butyl Phthalate. Is there any in your product? ”

CAS #
85-68-7

“Design-Out” Scarce Materials

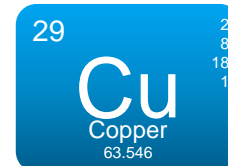


“ Which parts use Neodymium? What changes can be made to reduce our usage? ”



Volume Purchase Agreements

“ We know our annual world-wide consumption of copper. We can negotiate better pricing. ”



View BOM, part and supplier compliance status against multiple regulations

Compliance Status for Parts

The screenshot shows a 'Compliance Status - Official' window. At the top, there are several regulatory checkboxes, including 'RoHS(C)-D', 'RoHS(I)-D', 'RoHS(S)-D', 'EU RoHS-Sep 2011', 'EU RoHS (C)-Sep 2011', and 'EU RoHS 2 (M,MAC) 2011'. Below this is a table with columns for 'Measured Mass (g)', 'Calculated Mass (g)', 'Total Unspecified Mass (%)', and 'Deviation (%)'. A large yellow circle highlights a 'RoHS(C)-D' status icon with a checkmark and a star.

Material Content & Status Reports

The screenshot shows a 'BOM Information' window. An 'Actions:' dropdown menu is open, listing several report options: 'Generate Compliance Status Report', 'Generate Material Content Report', 'Generate Substance of Concern Report', 'Generate IPC-1752 Report', 'Generate Conflict Minerals Report', 'Generate Cost Estimate Report', and 'Generate REACH Substance Report'. The 'Generate IPC-1752 Report' option is highlighted in blue. Below the menu, there are fields for 'Organization ID:', 'Revision:', 'BOM Revision Date:', 'Saved BOM Version:', 'Applied Filter Name:', and 'BOM Source:'.

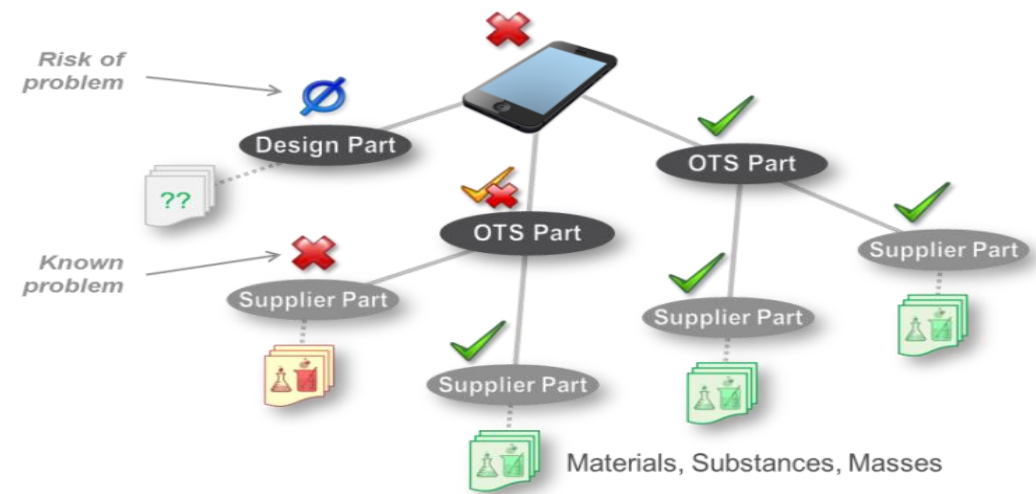


Compliance Status for BOMs

The screenshot shows a 'BOM Compliance Status' summary. At the top, there are checkboxes for 'RoHS(C)-D', 'RoHS(I)-D', 'RoHS(S)-D', 'EU RoHS-Jun 2011', and 'EU RoHS (C) 2011/65/EU'. Below this is a 'Company Part Summary' table and a 'Supplier Part Summary' table. A large yellow circle highlights a red 'X' icon next to the 'EU RoHS-Jun 2011' status.

Company Part Summary		Supplier Part Summary			
	With Material Content Disclosure	Without Material Content Disclosure			
Total Parts	16	51	Total Parts	33	68
Pass	10	1	Pass	23	4
Pass With Exemptions or Exceptions	4	3	Pass With Exemptions or Exceptions	8	6
Partial Fail	1	1	Partial Fail	2	0
Fail	1	0	Fail	0	0
No Data	0	4	No Data	0	58
Not Applicable	0	0	Not Applicable	0	0
Not To Be Considered	0	0	Not To Be Considered	0	0
Reportable	0	0	Reportable	0	0

Uses Advanced "Worse-Case" Algorithms



Bi-directional PTC Windchill PDMLink integration enables “Design for Compliance”

The screenshot displays the PTC Windchill Product Analytics interface. The main window shows a tree view of components under 'End Item - 899-93651-002-, Workstation 625, A.18 (Design)'. A table below the tree lists compliance status for various components across three columns: ROHS (C), REACH SVHC (A), and REACH SVHC (C). The table includes a 'Sourcing Status' column and a 'Find in Structure' search bar. A blue box highlights a specific row in the table, and a callout points to a red 'X' icon in the REACH SVHC (C) column for that row. Another callout points to the 'Product Analytics' tab in the top navigation bar.

Identity	Sourcing Status	ROHS (C)	REACH SVHC (A)	REACH SVHC (C)
899-93651-002-, Workstation 625, A.18 (Design)		✗	✗	✗
142-10681-0000-A03, NVIDIA Graphic Card, A.1 (Design)		✗	✗	✗
430-3300-001, MAIN FAN, A.7 (Design)	Approved	✗	✗	✗
441-78400-001, POWER SUPPLY ASM, A.6 (Design)		✗	✗	✗
500-88651-001, ESCON Card C500, A.11 (Design)		⊘	⊘	⊘
680-15633-001, 680-15633-001, A.2 (Design)		⊘	⊘	⊘
680-90012-001, 90Gb SCSI HDD, A.3 (Design)	Preferred	✗	✗	✗
STM380211AS, DiamondMax 20, SATA, 80GB, A.1 (Design)	Do Not Use	✓	✓	✓
WD800JD, WD Caviar SE, SATA, 80GB, 7200RPM, A.1 (Design)	Preferred	✗	✗	✗
800-00012-001, 800-00012-001, A.3 (Design)		✓	✓	✓
800-00012-002, 800-00012-001, A.1 (Design)		✓	✓	✓
899-011223-001, COMPUTER FEET, A.2 (Design)		✗	✗	✗
899-14555-001, FRONT BEZEL, A.4 (Design)	Preferred	✓	✓	✗
FC201-32, FRONTCOVER, A.1 (Design)	Preferred	✓	✓	✓
FR100-01, FRONT100, A.2 (Design)	Do Not Use	✓	✓	✓
899-233555-002, 899-233555-002.prt, A.2 (Design)		⊘	⊘	⊘
899-233555-003, 899-233555-003.prt, A.1 (Design)		⊘	⊘	⊘
BEZEL, BEZEL, A.4 (Design)	No AML	⊘	⊘	⊘
899-23331-001, CHASSIS ASM, A.5 (Design)		⊘	⊘	⊘
899-68880-001, RIGHT COVER, A.3 (Design)		✓	✓	✗
899-68881-001, LEFT COVER, A.3 (Design)		✓	✓	✗
901-03335-001, MOTHER BOARD, A.4 (Design)		✗	✗	✗
901-92500-001, THUMB SCREW, A.5 (Design)		✓	✓	✓
S493-388-200, System Restore CD, A.1 (Design)		⊘	⊘	⊘
S832-304-500, Device Drivers CD, A.1 (Design)		⊘	⊘	⊘

View Compliance Statuses from Product Analytics

Hyperlink to Details in Product Analytics

- **Track Regulatory and Customer materials requirements**

- Pre-packaged compliance specifications for
 - REACH
 - RoHS (EU, China, Korea)
 - Conflict Minerals
- Create customer specification

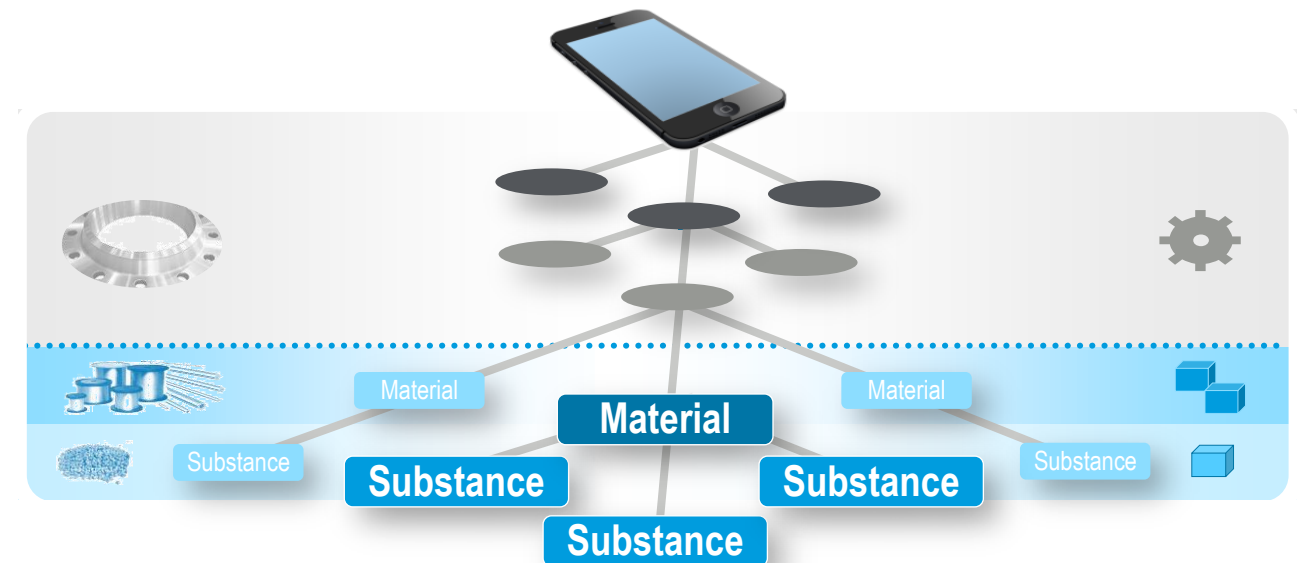
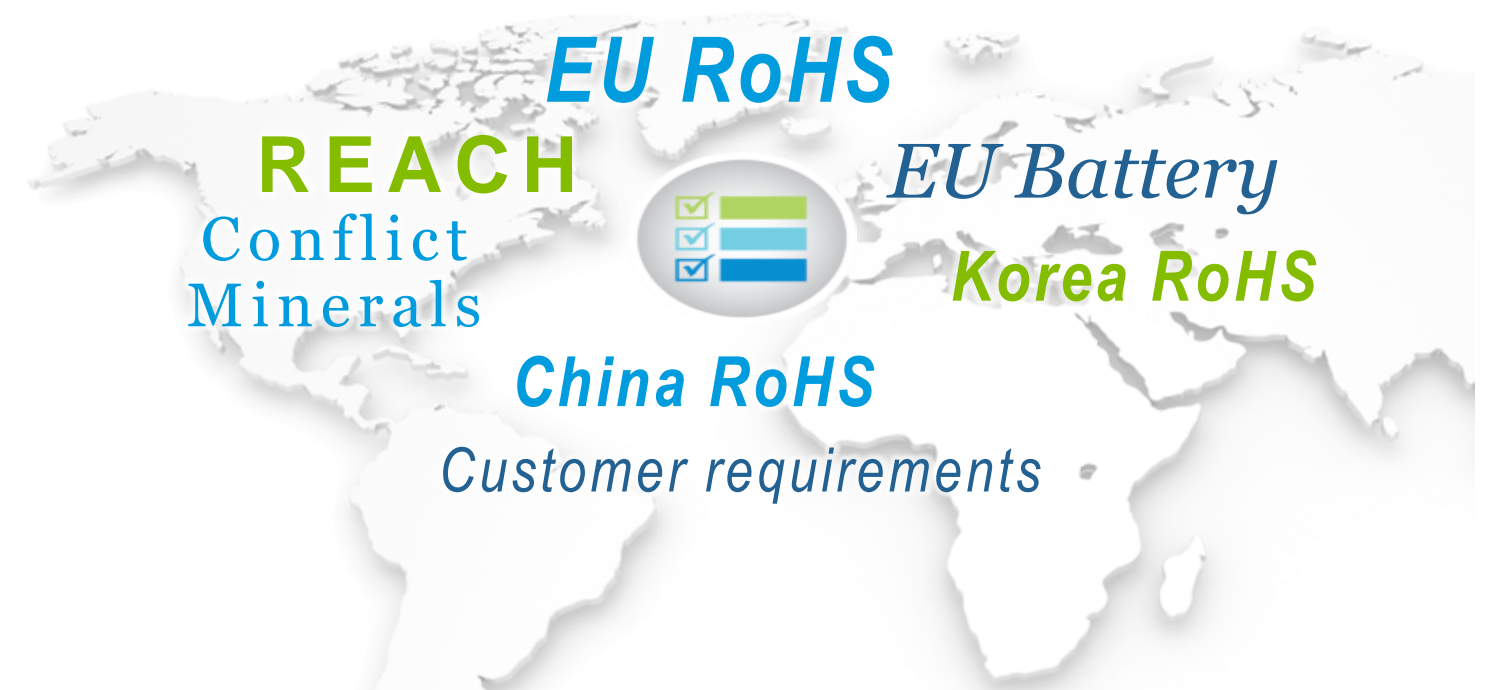
- **Collect and manage supplier disclosures**

- Automated process for sending requests and collecting supplier disclosures
- Support for multiple data collection options

- **Assess and Report**

- Reports at the BOM, part, materials and substances level
- Support for 1752A disclosures
- Integral with PDMLink to share results with enterprise

Stay current on compliance reporting obligations



- Your feedback is valuable
- Don't miss out on the chance to provide your feedback
- Gain a chance to win an instant prize!
- Complete your session evaluation now

PTC[®] Live Global

Windchill Materials Compliance is the industry leader

Proven at the largest, most complex and demanding companies on the planet

INNOVATION

- First RoHS solution
- Patented technology
- New Conflict Minerals module
- Improving supplier data acquisition automation

LEADERSHIP

- Active involvement in industry groups and standard committees
- IPC 1752, 1753, 1755, AIA, AIAG, NAM, BOMCheck Advisory Board

RESPONSIVE

- Customer Advisory Boards
- Customer “Sprint” Demos
- Autonomous “start-up” business unit backed by financial strength of PTC

EXPERIENCE

- Numerous successful deployments
- Services team: minimum 7-years experience implementing major global manufacturers

