



Chemical Visibility in Products: Strategies for Detection and Reporting

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Agenda



- 1 Introduction
- 2 What TURA Taught Me
- 3 PFAS Challenge
- 4 PFAS Solution
- 5 Closing Remarks
- 6 Questions

Introduction - Raymond Lizotte

Sustainable Innovation

Secure Power

Energy Management

Senior Expert (Level 2)

Sustainability & Environment

- Innovate – New Ways to do it!
- Improve Sustainability
- Translate Sustainability into Business Terms



Introduction – Toxics Use Reduction

Once a TURP...



Ray Lizotte, Senior Environmental Engineer, Texas Instruments Incorporated, Sensors and Controls Division, Attleboro

Since 1987, Ray Lizotte has fostered a team-based approach to TUR, to reduce Texas Instruments' (TI) reliance on trichloroethylene, a toxic chemical, from 850 tons a year in 1985 to less than two tons. Other victories include eliminating over two million pounds of anhydrous ammonia, and cutting its use of cyanide compounds from 35,000 pounds in 1996 to just 5,000 in 2000, for which TI received the Massachusetts Governor's Award for Excellence in TUR. Currently, as the TI Attleboro facility is transitioning from manufacturing to product development, Ray is promoting environmental sustainability through product redesign. Ray has taught several modules of the TUR Planner course since it was developed in 1992, and has contributed to nearly every major TUR educational conference for the past decade.

...always a TURP



Introduction – Schneider Electric

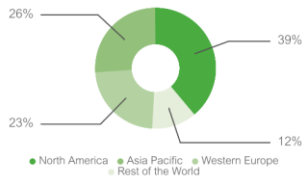
We **electrify, automate** and **digitalize** every industry, business and home, driving efficiency and sustainability for all.

Our business

Revenue

€40.2bn

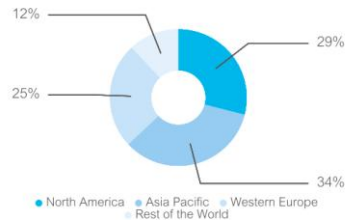
Revenue by geography in 2025



Employees

163k

Total employees by geography in 2025⁽¹⁾



Schneider
Electric

Data Center & Networks

30% 2025 Orders

Key trends

- Surge in computing power demand
- 800V DC
- Power & Liquid cooling efficiency
- Convergence White/Grey space

Buildings

29% 2025 Orders

Key trends

- Increase of Electrification
- Need for more Energy Efficiency
- Convergence of Power & Building management

Industry

27% 2025 Orders

Key trends

- Process electrification
- Industrial data
- Advanced monitoring and optimization

Infrastructure

14% 2025 Orders

Key trends

- Power generation supporting electrification
- Integration of renewables
- Safeguarding critical infrastructure
- Digitalize for efficiency

Strong Sustainability Leadership

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TIME
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1

2021

2024

2025

2025

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Key Learning

Watch out what you ask for....

Asked Design Engineering Team to make a Greener Uninterruptible Power Supply.



Key Learning

Watch out what you ask for....

Asked Design Engineering Team to make a Greener Uninterruptible Power Supply.



They did exactly what I asked them to do!

Key Learning

We are Translators – Toxics Use Reduction is a “Translation Tool”

Asked Design Engineering Team to make a Greener Uninterruptible Power Supply.



Energy Efficient
Lead free PCB
All components RoHS
Smaller footprint
No Plastic in Packaging



“Green” or “Sustainable” do not have sufficient meaning to guide product designers. The meaning must be clearly articulated to achieve success

Experts must be able to “Translate” what they want into language/concepts that their audience can comprehend.

What TURA Taught Me: Value of “Use Per Unit of Product”

Home > All Products > Critical Power, Cooling and Racks > Uninterruptible Power Supply (UPS) > Network and Server > APC Smart-UPS > SMT1000C

< View all APC Smart-UPS



APC Smart-UPS, Line Interactive, 1000VA, Tower, 120V, 8x NEMA 5-15R outlets, SmartConnect Port+SmartSlot, AVR, LCD

SMT1000C

[Add to My Products](#) Compare

Product availability: Non-Stock - Not normally stocked in distribution facility

- ✓ [Replacement battery \(1\)](#) is available
- ✓ 1000VA/700W line interactive pure sine wave tower UPS
- ✓ Ideal for servers, storage, network closets, business VoIP & desktops, retail POS
- ✓ Automatic Voltage Regulation helps correct utility voltage
- ✓ Cloud-based remote power monitoring via SmartConnect Ethernet Port
- ✓ Graceful shutdown using serial or USB cables via PowerChute Serial Shutdown

Roll over image to zoom in



Environmental footprint

Total lifecycle Carbon footprint	801 kg CO2 eq.
Carbon footprint of the manufacturing phase [A1 to A3]	614 kg CO2 eq.
Carbon footprint of the distribution phase [A4]	15 kg CO2 eq.
Carbon footprint of the installation phase [A5]	4 kg CO2 eq.
Carbon footprint of the use phase [B2, B3, B4, B6]	146 kg CO2 eq.
Carbon footprint of the end-of-life phase [C1 to C4]	22 kg CO2 eq.
Environmental Disclosure	Product Environmental Profile

- Engineers apply EcoDesign to reduce CO2 per unit of product
- Results
 - Higher Efficiency product
 - More power per product
 - Smaller Product (less mass)
 - Use of Lower Carbon materials
 - Embedded Circularity
 - Sustainable Packaging
 - Improved “architecture”

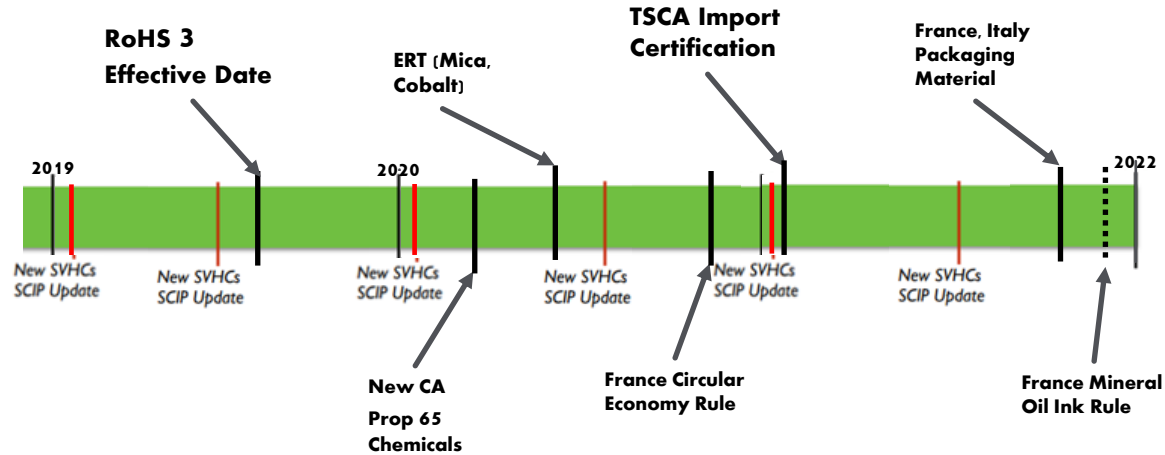
Toxics Use Reduction is the Key Translation Tool

Challenge to all of us – The Tsunami!

- **New Requirements** regions adding new regulations and ways of compliance
- **Dis-harmonization** global differences in enacting these new requirements
- **Supply Chain Capability** addressing supply chain risks, requiring companies to conduct due diligence and provide the necessary information for compliance
- **Remaining Compliant** meeting all these regulations applicable wherever your products end up.

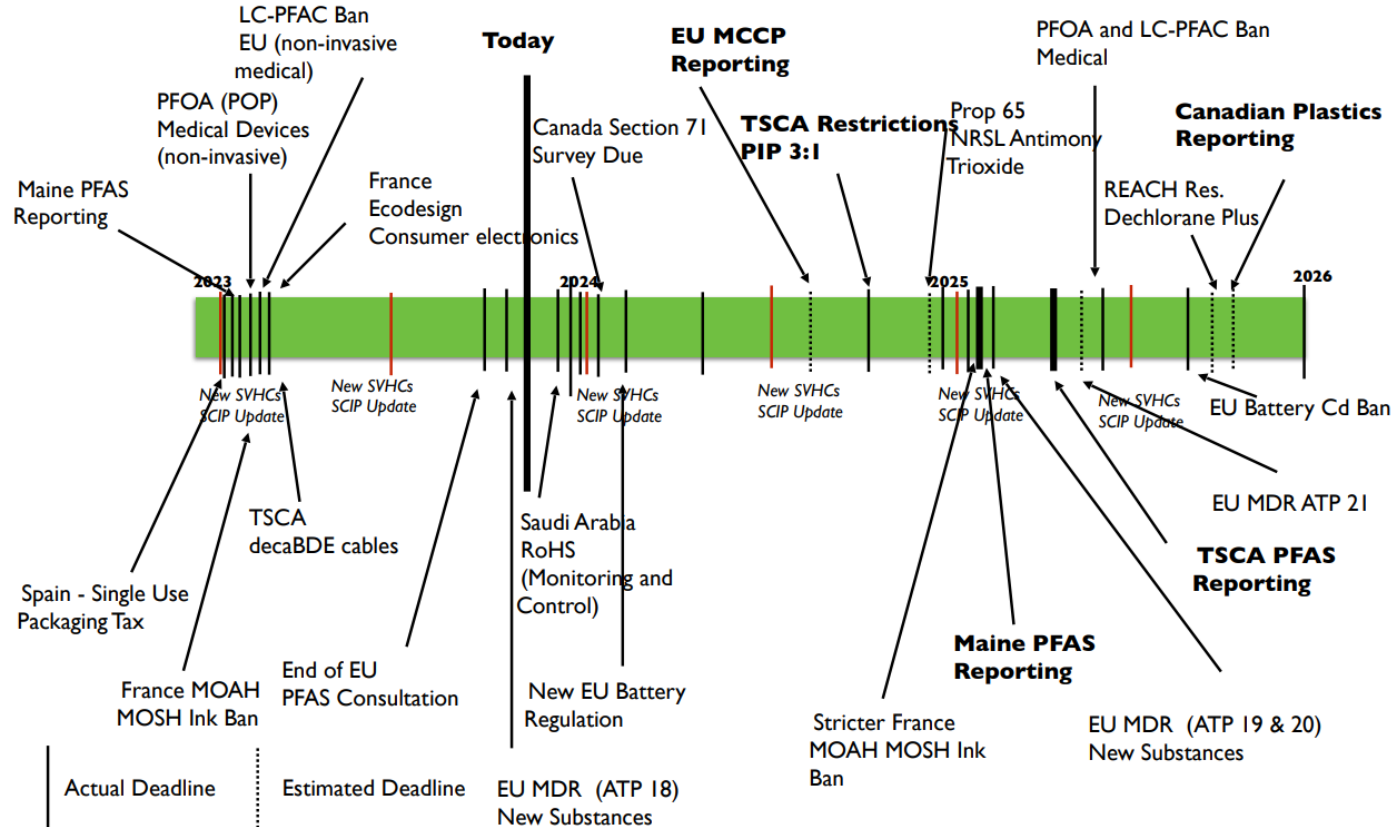


New Compliance Requirements (2019 - 2022)



From 2019 through 2022: Minimal Global Regulatory Activity

Tsunami of New Compliance Requirements (2023 - 2025)



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PFAS Reporting

Supply Chain needs to “learn” requirements

- **Confusion over PFAS definition** – all parties have to understand the “list” of PFASs subject to a specific query
- **Methods to quantify PFAS** – Common methods to quantify PFAS need to be deployed
- **Quality Checks/Corrective Actions** – Checks on Supplier Conformance and Corrective Action times



EU

PFAS definition is limited
New PFAS Regulation will further complicate scope



Canadian

Limits reportable PFAS to specific list of PFAS/PFOS substances



Federal

PFAS definition includes whole scope of PFAS/PFOS



State Level Regulations

PFAS definition includes whole scope of PFAS/PFOS

No common definition/list for PFAS

Schneider Electric took a different approach

PFAS Reporting: Compliance without Supplier Assistance

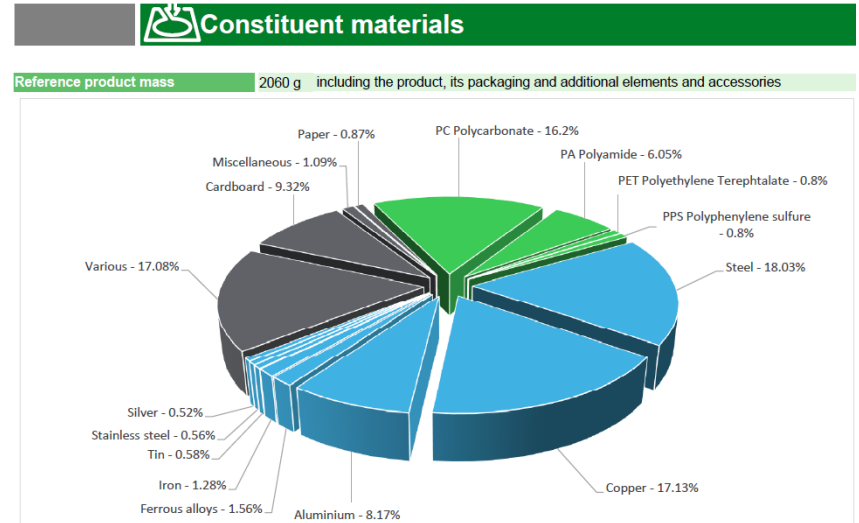
Developed a unified methodology based on LCA documentation

Digitized material content by Product Family

Material experts conduct risk-based assessment for materials for presence of PFAS substances

High Risk Supplier Contact and Lab Analytics

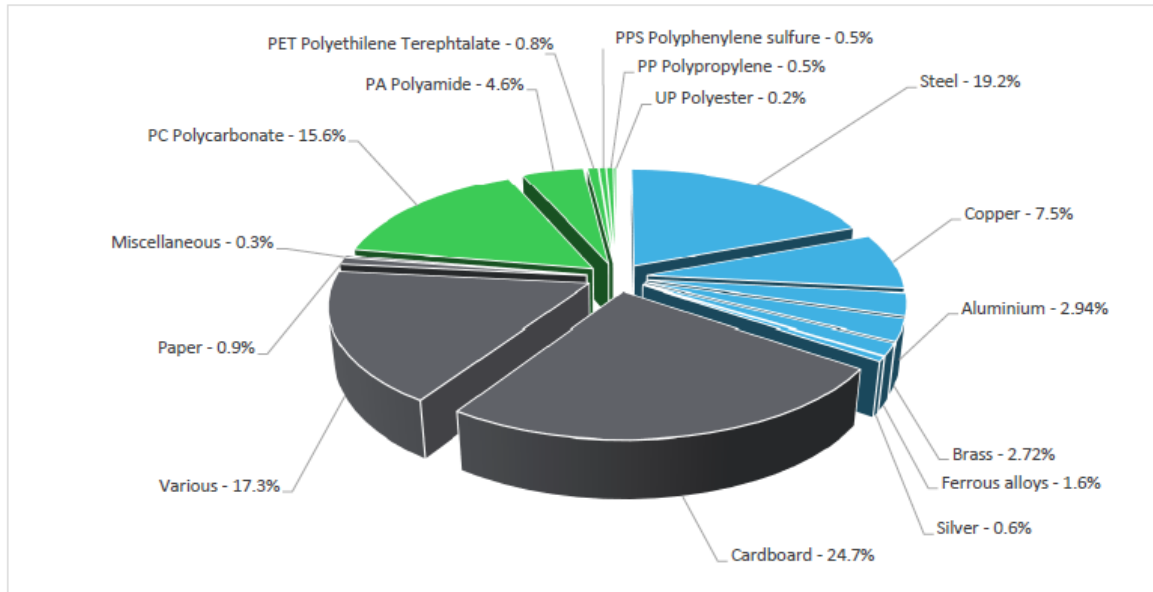
Consolidating information to reporting template



Step 1: Material Assessment using LCA documentation

Constituent materials

Reference product mass 2031 g including the product, its packaging and additional elements and accessories



- Use AI to pull Material Assessment from LCA documentation
- Put the documentation into spreadsheet format
- Separate High-Risk Materials for further evaluation

% Material pulled from LCA Documentation

Business Line	PEP Number	Champion Product	Copper	Brass	Stainless steel	Aluminium	Ferrous alloys	Iron	Silver
			%	%	%	%	%	%	%
Power Products	ENVPEP1408006EN	L600AWK			0.10	0.10			0.00
Power Products	ENVPEP1501004	LC1D09P7	9.70	1.10	0.30	0.20			0.00
Power Products	ENVPEP2206027EN	HDL36150	7.50	2.72		2.94	1.60		0.60
Power Products	ENVPEP2206029EN	LLL36600U31X	18.10		1.00	12.70			0.40
Power Products	ENVPEP2206031EN	JGL36250	17.13		0.56	8.17	1.56	1.28	0.52
Power Products	ENVPEP2206033EN	PGL36120U43A	19.38	4.09	1.50	26.14			0.00
Power Products	ENVPEP2206034EN	RJF36300CU43A	62.33	1.09				0.69	0.10
Power Products	ENVPEP2303036EN	VH362NAWKGL	3.60		0.14	1.41			0.00
Power Products	ENVPEP2305005EN	D324NRB	7.10		0.10	1.72		0.28	0.00
Power Products	ENVPEP2305006EN	DU323RB	3.40		0.10	2.10			0.00
Power Products	ENVPEP2311047EN	BJL36125LU	9.60		2.90		1.10		0.20
Power Products	ENVPEP2311048EN	QBL22200	18.00	2.80	0.30	8.00			0.80
Power Products	ENVPEP2405006EN	NSYPLM43G		0.60					0.00
Power Products	ENVPEP100104EN	NSYS3D4420P			0.10	0.10			0.00
Power Products	ENVPEP110229EN	LC1D25P7	12.30	8.30	0.20	0.20			0.40
Power Products	ENVPEP110923EN	NSYSM18840P			0.10				0.00
Power Products	ENVPEP1307076EN	DTU223RB	2.60		1.10	0.70			0.00
Power Products	ENVPEP1404026EN	H365NR	5.60		0.10	4.30			0.00
Power Products	ENVPEP1405016EN	H367NR	10.06		0.10	4.65			0.00
Power Products	ENVPEP1604027EN	EX75T3HCU	25.30						
Power Products	ENVPEP1604028EN	EX75T3H	0.05			21.50			
Power Products	ENVPEP1407016EN	PQ3603G	5.00			0.40			0.00
Power Products	ENVPEP2204005EN	LV432598T							0.00
Power Products	ENVPEP2301020EN	C25F32D250	18.00	0.20	1.40				0.70
Power Products	ENVPEP2304017EN	C25F3TM250	16.70		1.50				0.70
Power Products	ENVPEP2304018EN	C40N32D400	26.50		4.60				0.30
Power Products	ENVPEP2304020EN	LV429387	1.00	1.00	2.80				0.00
Power Products	ENVPEP2304022EN	LV430407	1.00	1.00	1.70				0.00

Step 2: Assess each material for PFAS content

- For each material, PFAS expert identifies worse case PFAS concentration
- Identifies materials for which laboratory analyses valuable
- Finalize PFAS concentrations for each substance



Step 3: Quantify PFAS Content for each Unit of Product

Champion Product				PFAS Content % (1 PPM or 0.0001% threshold for reporting)	Polycarbonate (PC)				
Business Line	PEP Number	Champion Weight	PC GF20+Z(PTFE)6		PC GF20 Z(PTFE)10, PC GF10 Z(PTFE)10	PC GF20+Z(PTFE)12	PC GF10+Z(PTFE)15, PC GF10+Z(PTFE)15 FR(16)	PC Z(PTFE)20, PC GF20+Z(PTFE)20	
			6.00%		10.00%	12.00%	15.00%	20.00%	
			PFAS Conte	Grams	Grams	Grams	Grams	Grams	
Power Products	ENVPEP2206031EN	JGL36250	2060.0	0.0850%					
Power Products	ENVPEP2206033EN	PGL36120U43A	17690.0	0.0353%					
Power Products	ENVPEP2206034EN	RFL36300CU43A	69536.0	0.0074%					
Power Products	ENVPEP2303036EN	VH362NAWKGL	8511.0	0.0456%					
Power Products	ENVPEP2305005EN	D324NRB	24630.0	0.0495%					
Power Products	ENVPEP2305006EN	DU323RB	7110.0	0.0266%					
Power Products	ENVPEP2311047EN	BJL36125LU	1378.9	0.0685%					
Power Products	ENVPEP2311048EN	QBL22200	1620.0	0.0000%					
Power Products	ENVPEP2405006EN	NSYPLM43G	5870.0	0.0005%					
Power Products	ENVPEP100104EN	NSYS3D4420P	9800.0	0.0000%					
Power Products	ENVPEP110229EN	LC1D25P7	437.5	0.0170%					
Power Products	ENVPEP110923EN	NSYSM18840P	108550.0	0.0005%					
Power Products	ENVPEP1307076EN	DTU223RB	20410.0	0.0231%					
Power Products	ENVPEP1404026EN	H365NR	88500.0	0.0005%					
Power Products	ENVPEP1405016EN	H367NR	174000.0	0.0005%					
Power Products	ENVPEP1604027EN	EX75T3HCU	366502.0	0.0000%					
Power Products	ENVPEP1604028EN	EX75T3H	306174.0	0.0000%					
Power Products	ENVPEP1407016EN	PQ3603G	6543.0	0.0365%					
Power Products	ENVPEP2204005EN	LV432598T	903.0	0.1273%					
Power Products	ENVPEP2301020EN	C25F32D250	2089.0	0.0910%					
Power Products	ENVPEP2304017EN	C25F3TM250	2058.0	0.0890%					
Power Products	ENVPEP2304018EN	C40N32D400	5618.0	0.0165%					
Power Products	ENVPEP2304020EN	LV430287	130.0	0.0000%					

Component mass (g)
 x maximum PFAS% in material
 ÷ Champion Product mass
 = maximum PFAS% in product

Step 4: Apply to Sales for Reporting Period

- For reporting period, define the quantity of products subject to reporting.
 - Multiply quantity of products with weight of products
 - Multiply by maximum PFAS% in product

Report into Canada Reporting System

	Based on 2023 Imports				
	SE Legal Entity	Total			
Sl. No.	SE Business	Coverage of Imported Weight	Coverage of Imported CRs	Quantity of PFAS Imported (Kgs)	Quantity of PFAS to be reported (Kgs)
7	Secure Power	98%	96%	8213.47	8213.47

Primarily PFTE in Wires/Cables and PVDF in Lithium Batteries

Questions

Life Is On

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