

GreenData Manager® Application Note



Product Validation to EU Battery Directive 2006/66/EC with GreenData Manager (Desktop and Workgroup Editions)

GreenSoft Technology, Inc.

155 S. El Molino Ave., Suite 100 Pasadena, CA 91101 Phone: (323) 254-5961 Fax: (877) 525-9280 www.GreenSoftTech.com

Specifications and information contained in this manual are furnished for informational use only, and are subject to change at any time without notice, and should not be construed as a commitment by GreenSoft Technology, Inc. GreenSoft Technology, Inc. assumes no responsibility or liability for any errors or inaccuracies that may appear in this manual.

AppNote: Validation of Battery Directive using GDM-DE/GDM-WEv5 082021



General

This document describes how GreenData Manager[®] (GDM) software can validate the compliance of a product against **Directive 2006/66/EC (as amended by 2013/56/EU)** of the European Parliament and of the Council of 20 November 2013, more commonly known as the EU Battery Directive. The Battery Directive covers a wide range of topics, including the placing on the market, labeling, and disposal of batteries within the EU. This paper will cover how GDM can help with the compliance validation of chemical substance prohibitions and examination of chemical substances for labeling on batteries.

EU Battery Directive

EU Battery Directive, 2006/66/EC, was first issued by the EU on September 6, 2006 and subsequently amended multiple times. This directive defines substance restrictions, labeling, and other requirements directed at batteries and accumulators placed on the EU market. Click <u>here</u> to access the consolidated official directive text including amendments.

Prohibitions

- All batteries or accumulators containing more than **0.0005% (5ppm) of mercury (Hg)** by weight are prohibited.
 - Exemption 1: Batteries used in vehicles to which Directive 2000/53/EC (ELV Directive) applies are exempt from the EU Battery directive restrictions. However, these items are restricted under the ELV Directive.
- All batteries or accumulators containing more than **0.002% (20ppm) of cadmium (Cd)** by weight are prohibited.
 - Exemption 1: **Portable batteries** (defined as any battery that is sealed and can be hand-carried and is not an industrial battery or an automotive battery) in use of medical equipment, emergency lighting, and emergency alarm systems are exempt.
 - Exemption 2: Batteries used in vehicles to which Directive 2000/53/EC (ELV Directive) applies are exempt from the EU Battery directive restrictions. However, these items are restricted under the ELV Directive.

Labeling

- All batteries, accumulators, and button cells must be marked with a symbol of a "crossed-out" wheeled recycling bin.
- If the battery or accumulator contains more than 0.0005% (5ppm) mercury, more than 0.002% (20ppm) cadmium, or more than 0.004% (40ppm) lead, then the chemical symbol for that particular metal shall be added beneath the crossed bin symbol. The chemical symbol must cover an area at least one-quarter the size of the crossed bin symbol.
- Separate chemical symbols are required if the battery or accumulator contains more than one of these metals. For example, a battery containing lead (Pb) exceeding 0.004% and mercury (Hg) exceeding 0.0005% must be marked with both Pb and Hg symbols.





Compliance Management for Batteries in GDM: Prohibitions and Labeling

To address compliance validation against the Battery Directive, GDM has implemented a category modeling as shown below. Batteries are divided into 4 categories – (1) button-cell batteries, (2) non-button-cell batteries, (3) portable batteries, and (4) all batteries. *Note: Categories (1) and (2) are no longer used for calculating compliance status, but still exist as an artifact of now-expired exemptions specific to button cells.*

	Rule Category Description	Rule Category Name	Affecting Substance(s)	Threshold	Note
1	Button Cell batteries or batteries composed of button cell batteries All batteries except for button cell batteries	Battery - Portable Battery - Button Cell Battery Battery - Non Button Cell Battery	Button Cell Rule Categories are no longer applicable due to expiration of button-cell exemptions.		
3	All portable batteries All batteries	Battery - Portable Battery Battery	Cadmium	20ppm for Cadmium	Exemption for medical equipment, emergency and alarm systems.

Step-1: Assign Commodity Codes to Batteries in GDM

A category code must be assigned to allow GDM to identify a specific item as a battery. To do so, GreenSoft recommends implementing the use of commodity codes. In our example below, there are 9 battery parts as listed – eight portable batteries and one industrial battery.

IPN	MFG Name	MFG PN	Description	Commodity Code
103-303705	LTT	LTT-1300AA6Y9V	Bat Ni-MH 7.2V 1.3Ah (6 x 1.2V) AA LTT	
1057521	Varta	55602 302 014	Rechargeable Battery NiMH 2.4V 15mAh	
3902-1030	PANASONIC	CR-2477/HFN	BATTERY,LITHIUM,COIN CELL,TPH,2.8MM TAB,24MM,3V,1000MA	
BATG-BR1632R81-B	RAYOVAC	BR1632R81-BA	BAT,SRFCMNT,16X3.2mm,3.3V,RO	
BATG-BR1632R81-B	RAYOVAC	BR1632R81-B	BAT,SRFCMNT,16X3.2mm,3.3V,RO	
BATG-BR2335SM-B	RAYOVAC	BR2335SM-B	BAT,300MAh,3V,SMT,ROHS	
RBAT00001	RENATA	CR1225	BATTERY LITHIUM CR-1225 3V 38mAH	
RBTRY0001	RENATA	CR2032	BATTERY LITHIUM CR-2032 3V 235mAH	
IBAT0012	YUASA	NP7-12	IND BAT LEAD-ACID 12V 7Ah	

Commodity codes can be assigned to these batteries individually by editing each part in Segment 1 of the part's Item Details page, or assigned in bulk by using GDM's 'Import from Excel' function.



In the example below, the company's PDM/PLM system has commodity codes assigned already, and has classified 2 different categories for batteries -(1) bat: for all batteries, (2) portable: for portable batteries only. These codes are listed in the Excel import file, as shown below.

IPN	MFG Name	MFG PN	Description	Commodity Code
103-303705	LTT	LTT-1300AA6Y9V	Bat Ni-MH 7.2V 1.3Ah (6 x 1.2V) AA LTT	portable
1057521	Varta	55602 302 014	Rechargeable Battery NiMH 2.4V 15mAh	portable
3902-1030	PANASONIC	CR-2477/HFN	BATTERY,LITHIUM,COIN CELL,TPH,2.8MM TAB,24MM,3V,1000MA	portable
BATG-BR1632R81-B	RAYOVAC	BR1632R81-BA	BAT,SRFCMNT,16X3.2mm,3.3V,RO	portable
BATG-BR1632R81-B	RAYOVAC	BR1632R81-B	BAT,SRFCMNT,16X3.2mm,3.3V,RO	portable
BATG-BR2335SM-B	RAYOVAC	BR2335SM-B	BAT,300MAh,3V,SMT,ROHS	portable
RBAT00001	RENATA	CR1225	BATTERY LITHIUM CR-1225 3V 38mAH	portable
RBTRY0001	RENATA	CR2032	BATTERY LITHIUM CR-2032 3V 235mAH	portable
IBAT0012	YUASA	NP7-12	IND BAT LEAD-ACID 12V 7Ah	bat

The completed Excel file can now be imported into GDM by using "**Import from Excel**", found on the Item Master page. Remember to map the columns for the Internal Part Number, Manufacturer Name, Manufacturer Part Number, and Category (Category and Commodity code are used interchangeably). The sample mapping is shown below for reference. Ensure the "Add New/Update Old" radio button is checked, which assigns the battery category without changing the original compliance data of these battery parts.

Import Item from Excel Item Master - Import from Excel - Step 2: Map the fields on the imported Append.	Excel. GreenData Manager shows you the full list of field	ds it supports. Select the mapping fields and complete the imp
Item Import - Step 2:		
Part Number Profile Segment :		
Internal Part Number:	IPN	*
Manufacturer Part Number:	MFG PN	~
Part Series/Part Family:	<lgnore></lgnore>	•
Manufacturer Name:	MFG Name	*
Manufacturer Code:	<lgnore></lgnore>	•
Category:	Commodity Code	•
Package:	<lgnore></lgnore>	•
Description:	<lgnore></lgnore>	•
Remark:	<lgnore></lgnore>	-
Corrected MFG Name:	<lgnore></lgnore>	•
Corrected MFG PN:	<lgnore></lgnore>	•
Documents Segment :		
Document Type:	<lgnore></lgnore>	—
Document Name:	<lgnore></lgnore>	•
Document Link:	<lgnore></lgnore>	•
Effective Date:	<lgnore></lgnore>	•
Expiry Date:	<lgnore></lgnore>	•
Notes:	<lgnore></lgnore>	•
• • • • • • • • • • • • • • • • • • •	ſ.	
☑ Save Preference ◎ Add New		OK Cancel



Once the codes are imported, the category code can be viewed by reviewing the Item Details page of the impacted parts. See the Item Details for the LTT part below. The commodity code of "portable" is now assigned to the Category/Commodity field.

Item Details	- 1946	
You can review, revise or edit the component details per each segment. You can also	edit the material composition data by add/edit/delete	subpart, substance groups or substance into.
Component Material Composition		
Add Subpart	Save Cancel Copy	To Copy From View Change History Close
	Article Management	Where Used
	RequirementStatus: 🔵 MCD Status: 🔵	Jump to Segment: <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u>
⇒Sp component	R1: 🔵 EU RoHS	In the event that the nile status fails you
S Nickel	R2: REACH SVHC (219)	can click on the rule name to generate a
Cadmium oxide	R3: O -	Failure analysis Report.
- S Iron	R4: O -	
	# 1	
- S Zinc	#1	
S Nickel dihydroxide	Part Number Profile Segment (1)	
Copper	Internal Part Number:	103-303705
S Cobalt oxide	Mary factors Name	177
	Manufacturer Name.	
	Manufacturer Part Number:	LTT-1300AA6Y9V
	Manufacturer Code:	
	Part Series/Part Family:	
	Corrected Manufacturer Name:	
	Corrected Manufacturer Part Number:	
	Category/Commodity Code:	portable
	Package:	
	Part Description:	Bat Ni-MH 7.2V 1.3Ah (6 x 1.2V) AA
	Part Mass (g):	135 Edit value in MCD Segment

Step-2: Connect Commodity Codes to the Rule Categories

Once the commodity codes for these battery parts are assigned in GDM, the next step is to link these commodity codes to the Rule Categories.

Click on "**Rule Category Setup**" under "**System**" menu. The rule category should initially be blank as shown below.

Rule Category Setup Choose an existing Category from the grid below and double-click the row to edit the details. Add a new category to the system by clicking on Add New Category Close the 'Add New Category' button.							
Category Name Notes System Defined Commodity Code							
Battery	All batteries	Yes					
Battery - Non Button Cell Battery	All batteries except for button cell batteries	Yes					
Battery - Portable Battery	All portable batteries	Yes					
Battery - Portable Battery - Butto	Button Cell batteries or batteries composed of button cell bat	Yes					
EU RoHS Not Concerned	EU RoHS Not Concerned	Yes					
Fire-fighting foams	fire-fighting foams that have been placed on the market befo	Yes					

Double-click on one row of the desired category (Battery or Portable Battery) to enter the commodity code for the selected category. Based on the 2 different commodity codes from the example



companies' PDM/PLM system (bat, portable), the commodity codes can quickly be assigned by mapping the categories with the values below –

Rule Category Setup				
Choose an existing Category from the grid the 'Add New Category' button.	d below and double-click the row to edit the details. Add a new category to	the system by clicking on	Add New Category Close	
Category Name	Notes	System Defined	Commodity Code	
Air Freshener	Air Freshener	Yes		
Battery	All batteries	Yes	bat, portable	
Battery - Non Button Cell Battery	All batteries except for button cell batteries	Yes		
Battery - Portable Battery	All portable batteries	Yes	portable	
Battery - Portable Battery - Butto	Button Cell batteries or batteries composed of button cell bat	Yes		
Cables or Cords	Cables or cords with thermoset or thermoplastic coatings	Yes		
Custom category	This is testing of rule category	No		
Electronic Parts	Components in plastic material within an electronic product, i	Yes		
EU RoHS Not Concerned	EU RoHS Not Concerned	Yes	bat, portable	
EU RoHS-2 New Substances Not	EU RoHS-2 New Substances Not Concerned	Yes	52.5	

- 1. For the "Battery" category, both commodity codes were assigned bat and portable.
- 2. For the "Battery Portable Battery" category, one commodity code was assigned portable.
- 3. For the "EU RoHS Not Concerned" category, both battery commodity codes should be assigned bat and portable. (Batteries are not in scope for the EU RoHS directive; this mapping will allow GDM to exclude batteries from any product EU RoHS validations.)

As noted previously, we will not assign commodity codes to categories concerning button-cells as the past exemptions have expired. Button-cells should be categorized as "Battery - Portable battery".

Step-3: Activate Commodity Code Processing

The battery parts are now configured with commodity codes assigned and linked to the associated rule categories. However, GDM will not apply these categories until commodity code processing is activated.

To activate commodity code processing, visit "System Parameters Setup" under "System" menu, and check on the "Use Commodity Codes" box, as shown below. Once checked, click "Save" and then "Close". Then close down GDM software and re-launch GDM. GDM is now ready to process these battery parts.

System Parameters						
Lock user access a	fter failed login attempts:	Never ~				
User password cha	nge interval (days):	Never ~				
EU RoHS Exemption Dates:	EU RoHS Exemption Dates: Categories 2 to 7 & 10					
Manufacturing Site - Item:	~					
Manufacturing Site - BOM:	<not selected=""></not>					
BOM List Interface:	🔿 Simple 💿 Detail	ed				
# of parallel Rule C	omputations: 5	* *				
Published MFG Nar	me:					
Published MFG Cod	de:					
Use Commodity Codes						
Proprietary Substance Processing						
Enable Audit Tr	Enable Audit Trail/Track Change History for Items					

Step-4: Battery Compliance Validation: Prohibitions

Once steps 1-3 are complete, Battery Directive compliance validation can be performed on all parts in the Item Master. To review the status of EU Battery Directive prohibited substances, click on "**Customer Compliance Report**" from the Item Master page as shown below.

Item Ma The Item	a ster n Masterpa	age quickly sum	imarizes your green data. Get a stati	us update on parts wi	th incomplete data, j	parts that are not in compliance v	with required regulation:	s, and parts wi	th associate	d documents.
Summar Number	of PN in Ite	em Master lister	/ total: 65/65	Number of MFG in	Item Master listed / t	otal: 34/41	Exact search for	Internal/Manu	facturer PN	Close
Search	Panel				Status Filter					
Internal I	PN:				EU RoHS Status:	<not selected=""> ~</not>	Requirement Status:	<not selecte<="" td=""><td>ed></td><td>✓ Search</td></not>	ed>	✓ Search
Manufac	cturer PN:		Part Series/Family:		R2 Status:	<not selected=""> ~</not>	MCD Type:	<not selecte<="" td=""><td>ed></td><td>~</td></not>	ed>	~
Manufac	cturer:				R3 Status:	<not selected=""> ~</not>	Collection Status:	<not selecte<="" td=""><td>:d></td><td>~</td></not>	:d>	~
Descripti	tion:				R4 Status:	<not selected=""></not>	Collection Phase:	<not selecte<="" td=""><td>ed></td><td>V Reset /</td></not>	ed>	V Reset /
					Expiry in :	30 Days 🗸 🗸	Lifecycle Status:	<not selecte<="" td=""><td>ed></td><td>~ Reload</td></not>	ed>	~ Reload
Page Na	avigation:	< Prev	Row: 1 to 65 Pg: 1/1	Next >	<not se<="" td=""><td>elected> ~</td><td>MCV Version:</td><td><not selecte<="" td=""><td>:d></td><td>~</td></not></td></not>	elected> ~	MCV Version:	<not selecte<="" td=""><td>:d></td><td>~</td></not>	:d>	~
Rule Se	election			Action Panel						
Rule -	R1: EU Ro	HS	OK	Add New Item	Delete	Manage Second Sources	Set as Primary		View Notific	ations
				Import from Excel	Import PartData	Import from IPC-1752 & 1752A	Import MCD from E	xcel	Import Rule	Status
R2 -	REACH S	VHC (219)	~	IEC-62474 Export	Export PartData	Export to IPC-1752A	Customer Complian	ce Report	Substance I	Matrix Report
R3 -	<not sele<="" td=""><td>cted></td><td>~</td><td>Substance Analysis</td><td>SVHC Report</td><td>REACH/RoHS/MCD Validation</td><td>RoHS Exemption F</td><td>leport</td><td>Unused Par</td><td>ts Report</td></not>	cted>	~	Substance Analysis	SVHC Report	REACH/RoHS/MCD Validation	RoHS Exemption F	leport	Unused Par	ts Report
R4 -	<not sele<="" td=""><td>cted></td><td>~</td><td>Grand Report</td><td>Export Parts List</td><td>Import MCV from Excel</td><td>CA Prop 65 Report</td><td></td><td></td><td></td></not>	cted>	~	Grand Report	Export Parts List	Import MCV from Excel	CA Prop 65 Report			

From the Customer Compliance Selection page, select "EU Battery – Prohibition."

1	Select Customer Compliance								
1	Customer Compliance Selection								
	Select a customer compliance for which you would like to perform analysis.	Select Close							
	Customer Compliance Name	Compliance Notes							
	EU Battery - Prohibition	EU Battery Prohibition - 2006/66/EC							
	PFOS Validation	Validating PFOS per Directive 2006/122/EC							

GDM will then show the compliance status for "EU-Battery – Prohibition" as shown below.



Item Customer Compliance Report Generates a compliance report for the set of Rules. You could then export the report to Excel.								
Action Panel Customer Compliance Profile: Compliance Notes: EU Battery - Prohibition - 2006/66/EC								
Item No	Internal PN	Manufacturer Name	Manufacturer PN	Customer Compliance Status	Battery - Prohibitions - Cadmium Status	Battery - Prohibitions - Mercury Status		
5	7	7	7 V	, ,	- 7	7		
1	001-BusCont00	1 GreenSoft Products	456-SFNE324234	Passed	Not Applicable	Not Applicable		
2	001-BusCont00	2 GreenSoft Products	456-SFNE324234	Passed	Not Applicable	Not Applicable		
3	001-BusCont00	3 GreenSoft Products	456-SFNE324234	Passed	Not Applicable	Not Applicable		
4	001-DCFAN001	GreenSoft Products	123-SFNE001	Passed	Not Applicable	Not Applicable		
5	001-DCFAN002	GreenSoft Products	123-SFNE001	Passed	Not App	Not Applicable		
6	001-DCFAN003	GreenSoft Products	123-SFNE001	Passed	Not App CLICK HER	ETO Not Applicable		
7	0022-10034-22	ON SEMICONDUCTOR	TL431AIDG	Passed		TERS Not Applicable		
8	0022-10034-22	TEXAS INSTRUMENTS	TL431AIDG4	Passed	Not App	Not Applicable		
9	0022-10036-00	5 MAXIM INTEGRATED PRODUCTS	MAX811TEUS+T	Passed	Not Applicable	Not Applicable		
10	0022-10036-00	5 STMICROELECTRONICS	STM811TW16F	Passed	Not Applicable	Not Applicable		
11	0022-10036-02	VENKEL	C0603C0G500-220JNP	Passed	Not Applicable	Not Applicable		
12	0022-10036-10	AVX	TAJA106K010R	Passed	Not Applicable	Not Applicable		

Note that there are many parts shown as "Not Applicable" for the intended rule. Simply filter out non-applicable parts by clicking on the reverse triangle, as shown above, select "Not Equal To", and type on the first row of the selected cell as "Not Applicable." GDM will display all battery parts (parts with battery commodity codes assigned) as shown below.

Item Cust Generates	tem Customer Compliance Report Generates a compliance report for the set of Rules. You could then export the report to Excel.									
Action Pa Customer C	nel ompliance Profile:	Compliance Name: EU Battery - Prohi Compliance Notes: EU Battery Prohib	bition ition - 2006/66/EC	^ \	Generate Close Export					
Item No	Internal PN	Manufacturer Name	Manufacturer PN	Customer Compliance Status	Battery - Prohibitions - Cadmium Status	Battery - Prohibitions - Mercury Status				
2	7	∇	7 7	7	ଦ not applicable ସ	7				
50	103-303705	LTT	LTT-1300AA6Y9V	Failed	Failed	Passed				
51	1057521	Varta	55602 302 014	Passed	Passed	Passed				
53	3902-1030	PANASONIC	CR-2477/HFN	Incomplete	Incomplete	Incomplete				
54	BATG-BR1632R81	I-B RAYOVAC	BR1632R81-B	Passed	Passed	Passed				
55	BATG-BR1632R81	I-B RAYOVAC	BR1632R81-BA	Passed	Passed	Passed				
56	BATG-BR2335SM-	-B RAYOVAC	BR2335SM-B	Passed	Passed	Passed				
63	RBAT00001	RENATA	CR1225	Incomplete	Incomplete	Incomplete				
64	RBTRY0001	RENATA	CR2032	Incomplete	Incomplete	Incomplete				

The table above shows GDM has reported Customer Compliance Status for the identified batteries. There are four parts noted as "passed," three parts as "incomplete," and one part as "failed."

In reviewing the "failed" part - the LTT AA battery part, as shown below, contains cadmium oxide at 200ppm, resulting in a cadmium concentration of more than 20ppm, causing GDM to report a "failed" status. However, it is possible this battery is subject to an exemption from the requirements, for example, an AA battery used in an alarm system. Compliance status for batteries used in exempted applications can be overridden and flagged to note they are compliant due to exemption.

omponent Material Composition		Item Details					
	Delete Substance	Save	Cancel	Copy To Copy From	View Change History	Close	;
		Article Management		Wh	ere Used		
BC 103-303705		Requirement Status: 🔵	MCD Status: 🔵	Jun	np to Segment: <u>1</u> <u>2</u>	<u>3 4 5 6</u>	<u>Z</u> 8
Sp component		R1: O EU RoHS		In t	he event that the rule st	tatus fails, vou	
- S Nickel		R2: REACH SVHC (2	219)	car	click on the rule name	to generate a	
Cadmium oxide		R3: 0 -		Fail	ure analysis Report.		
S Iron		H4: O -					
- S Manganese		#1					
S Zinc		Det Neder Defile	C (1)				
Nickel dihydroxide			Segment (1)				
Copper		Internal Part Number:		103-303	705		
Cobalt oxide		Manufacturer Name:		ITT			
		Manufacturer Part Numbe	er:	LTT-130	0AA6Y9V		
Substance:		Manufacturer Code:					
Cadmium oxide	^	Part Series/Part Family:					
		Corrected Manufacturer N	lame:				
CAS # 1305 19.0			vanie.				
EC #- 215-146-2		Corrected Manufacturer P	art Number:				
Mass (g):		Category/Commodity (Code:	portable	e		
minimum, average, maximum)		Package:					
opm (to homogeneous material)	00	P + D		D N. M	11 7 01/ 1 0 41 /0 1 01/		
minimum, average, maximum)		Part Description:		Bat Ni-M	H 7.2V 1.3Ah (6x 1.2V	JAA A	

A failed status for the Battery Directive rules can be overridden by assigning the part as "**passed**" by clicking "**Manage Rules & Documents**" in segment 3 of the Item Details Page, as shown below.

# 3 Compliance Status Segment (3)				
Exemption Reference Number:			Manage Exemption	ns
Compliant Replacement Part Number:				
Notes:		Portable for alarm	BAT - Cadmium exempted system.	< >
Rule Status & Documents:				
Legend: CoC - Certificate of Compliance	PoC - I	Proof of Complia	ance	
PONC - Proof of Non-Compliance	e IR-I	est Report	Manage Rules & Docum	ients
Rule Name	Status	Doc Type	Document	
EU RoHS	٠	PoC	PoC_LTT_LTT-1800	
REACH SVHC (138)	٠	PoC	SVHC138_LTT_LTT	
REACH SVHC (15)	•			
REACH SVHC (29)	•			
REACH SVHC (30)	•			
REACH SVHC (38)	•			

Double-click the "**Rule Status**" column of the Battery Directive rule, and select "**Passed**" (<u>do NOT</u> select "**Passed with Exemption**" which only Applies to the EU RoHS rule) as shown below, then click "**Close**."

Manage Rules Status & Documents									
Click on the Rule Status to change the rule status. Double-Click on the Rule Name to view/edit the associated documents.									
Rule Name	Rule Status								
ABC Company	Not Set								
ABC Company Requirements	Not Set								
AD-DSL List of Substances Group 1 (2017-08-16)	Not Set								
AD-DSL List of Substances Group 2 (2017-08-16)	Not Set								
AD-DSL List of Substances Group 3 (2017-08-16)	Not Set								
Battery - Labeling	Not Set								
Battery - Prohibitions - Cadmium	Not Set 🗸								
Battery - Prohibitions - Mercury	Passed Passed with Exemption								
California Proposition 65 (2018-10-26) (for analysis)	Failed Not Set								
California Proposition 65 (2018-11-23) (for analysis)	Incomplete								
California Proposition 65 (2019-03-08) (for analysis)	Not Set								

A note can also be optionally added to describe the reason the rule status has been manually overridden, as shown below. Be sure to save the changes before closing Item Details.

Exemption Reference Number:			Manage Exemptio	01
Compliant Replacement Part Numb	ver:			
Notes:		Portable for alarm	BAT - Cadmium exempted system.	0.0
Rule Status & Documents:		-		
system over contribute of compt	100	river or compr	ance	
PoNC - Proof of Non-Com Rule Name	plance TR - T	Doc Type	Manage Rules & Docum Document	ent
PoNC - Proof of Non-Com Rule Name EU RoHS	plance TR - T Status	Doc Type PoC	Manage Rules & Docum Document PoC_LTT_LTT-1800	ert A
PoNC - Proof of Non-Com Rule Name EU RoHS REACH SVHC (138)	plance TR - T Status	Doc Type PoC PoC	Manage Rules & Docum Document PoC_LTT_LTT-1800 SVHC138_LTT_LTT	ert.
PoNC - Proof of Non-Com Rule Name EU RoHS REACH SVHC (138) REACH SVHC (15)	plance TR - T Status	Doc Type PoC PoC	Manage Rules & Docum Document PoC_LTT_LTT-1800 SVHC138_LTT_LTT	
PoNC - Proof of Non-Com Rule Name EU RoHS REACH SVHC (138) REACH SVHC (15) REACH SVHC (29)	Status	Doc Type PoC PoC	Manage Rules & Docum Document PoC_LTT_LTT-1800 SVHC138_LTT_LTT	
PoINC - Proof of Non-Com Rule Name EU RoHS REACH SVHC (138) REACH SVHC (15) REACH SVHC (29) REACH SVHC (30)	plance TR - T Status	Doc Type PoC PoC	Manage Rules & Docum Document PoC_LTT_LTT-1800 SVHC138_LTT_LTT	
PoNC - Proof of Non-Com Rule Name EU RoHS REACH SVHC (138) REACH SVHC (15) REACH SVHC (29) REACH SVHC (20) REACH SVHC (30)	plance TR - T	est Report Doc Type PoC PoC	Manage Rules & Docum Document PoC_LTT_LTT-1800 SVHC138_LTT_LTT	

Looking at the Customer Compliance Report again (see below), the LTT part which was originally at Failed status has transitioned to Passed. This battery has now been noted as used in an exempted application.

Also, it should be noted that three parts in our example (Items #53, #63, and #64) have a Customer Compliance Status of "Incomplete." This is due to the parts not having adequate substance information or legal certificates of compliance available, preventing GDM from validating the substance content and/or compliance status of these items.

Action Pa	nel					
Customer C	ompliance Profile:	Compliance Name: EU Battery - Pro Compliance Notes: EU Battery Proh	hibition ibition - 2006/66/EC		Close Close Export	
Item No	Internal PN	Manufacturer Name	Manufacturer PN	Customer Compliance Status	Battery - Prohibitions - Cadmium Status	Battery - Prohibitions - Mercury Status
7	7	V	7	7	7 not applicable 5	7
50	103-303705	LTT	LTT-1300AA6Y9V	Passed	Passed	Passed
51	1057521	Varta	55602 302 014	Passed	Passed	Passed
53	3902-1030	PANASONIC	CR-2477/HFN	Incomplete	Incomplete	Incomplete
54	BATG-BR1632R81	-B RAYOVAC	BR1632R81-B	Passed	Passed	Passed
55	BATG-BR1632R81	-B RAYOVAC	BR1632R81-BA	Passed	Passed	Passed
56	BATG-BR2335SM-	B RAYOVAC	BR23355M-B	Passed	Passed	Passed
63	RBAT00001	RENATA	CR1225	Incomplete	Incomplete	Incomplete
64	RBTRY0001	RENATA	CR2032	Incomplete	Incomplete	Incomplete

Step-5: Battery Compliance Validation on BOM: Prohibitions

The same validation performed in Step-4 can be applied to a specific BOM. From the **BOM List page**, select the desired BOM for validation and click on "**Customer Compliance Report**", as shown below.

BOM View	BOM List View the status of all BOMs on this BOM List page. (Note: Inclusion of 2nd source parts for computation only affects Compliance Status.)											
Searc	Search Panel											
BOMI	ID: C1		Project Name:			Search	Reset	Close	•			
BOM	Name:		Location: <not< td=""><td colspan="7">.ocation: <not selected=""></not></td></not<>	.ocation: <not selected=""></not>								
Actio	n Panel											
Impor	Import - Import a BOM from the Excel file. Subtrace Report Subtrace Report Subtrace Report Subtrace Report Usicourse Report Mass Analysis Report Full BallS MCV Report Full BallS											
View	View - View BOM Details on the selected BOM. View Bulk Auto Processing Compliance Summary Report Bulk Hierarchy Report Used Parts Report View Subassemblies											
Delet	e - Delete the selected BOM fro	m the list. Delete	<u>Re-Import BOM</u> Import Documents	Reportable REACH	<u>SVHC</u>	CA Prop 65 Report E	xplode BOM	Implode BON	4			
Sum Numb	nary per of BOMs listed / total: 3 / 10	Export BOMs List	Product CMRT Produ	uct Bulk CMRT List of	of Products/l	User defined CMRT	CIP Management					
- BOM	List DK/Passed e : Not Ready/F	ailed 🔉 : Invalid Entry/Ir	icomplete 🛛 🕘 : Docur	ment Expired 🏾 😑 : f	Passed with	n Exemption 🗖 : Subp	art Info Incomplete	📕 : Subpar	rt Failed	○ : Not Applicable		
#	BOM ID	BOM	Name	Revision	Project	Match Status	Requirement	Status	Edit	Published/Exploded Da		
1	C15	Control Board M590, DIV-1	5-1			•	•		- 12			
2	C15-1	Control Board M590, DIV-1	5-1			•	•		E -			
3	C16	Control Board M609 V2, DI	V-16-1			•	•		E			

Select the **"EU Battery – Prohibition**" Customer Compliance Rule and click **"Select**" to generate a compliance report for the **"EU Battery – Prohibition**" rule, as shown below.

- C a Se	ustomer Compliance Selection lect a customer compliance for which you would like to perform analysis.	Select	Close
	Customer Compliance Name	Compliance Notes	
►	EU Battery - Prohibition	EU Battery Prohibition - 2006/66/EC	
	PFOS Validation	Validating PFOS per Directive 2006/122/EC	

GDM will scan through all parts inside the BOM, identify parts classified as batteries (parts with battery commodity codes assigned), and examine the concentration of 2 substances – Cadmium and Mercury, comparing the concentrations with associated regulation thresholds. GDM will then generate a status report as shown below.



Generates a	Customer Compliance Report Generates a compliance report for the set of Rules. You could then export the report to Excel. Double-click a row to generate the Product Compliance Report for the selected Rule.											
Action Pane BOM Profile:	* Mass has been calculated by aggregation.	Customer Compliance Profile:										
BOM ID: C16 BOM Name: Revision: Project Name Mass (g): 8.2 Location: Glo	Control Board M609 V2, DIV-16-1	< >		Generate Export ixclude parts with inc include 2nd Source	Close complete information <u>Exception Report</u>							
Item No		Rule Name		Con	npliance Status							
	7		7	7		∇						
1	Battery - Prohibitions - Cadmium				Passed							
2	Battery - Prohibitions - Mercury				Passed							

If additional detail on the compliance status is desired, double-click the specific row of interest. For example, to learn more on the Mercury prohibitions status, considering the BOM does contain one portable battery, double-click on the rule name and GDM will show the detailed compliance status for the specific rule, as shown below.

BOM Compliance Report Generates a compliance report for the selected Rule. You could then	xport the report to Excel. Double-click a row to generate the Subs	tance Analysis Report.									
Action Panel Rule Profile: * Mass has been calculated by aggregation. Rule Profile: BOM ID: C16 BOM Name: Control Board M609 V2, DIV-16-1 Rule Name: Battery - Prohibitions - Mercury											
Product Compliance Status: Passed Item No Type Substance Name CAS V V V V	Number Threshold Units Compliance Status	MCV (ppm) Article Level Weight (mg) Notes									
1 Group Mercury/Mercury Compounds	5.000 ppm Passed	0.000 0.0000000000									

Additional detail of the specific components in the BOM can be viewed by double-clicking on the highlighted row. GDM will show the full BOM with hierarchy and the compliance status for the rule, as shown below.

Action Panel BOM Profile: Select Single Substance Select Multiple Substances as defined by a F DM IP: C16 Substance Name: Manuar (Manuar)							s as defined by a Rule		Connets	0			
BOM N BOM N Revisio	ame: Control Board M609, D n:	IIV-16-1	Substance Name: Mercury/Mercury Compounds CAS Number: EC Number:					Expot					
V Excl	ude parts with incomplete in	formation	Number of Items shipped/	year:	1		Include 2nd Source						
Level	BOM ID/Internal PN	Manufacturer Name	Manufacturer PN	2nd	Quantity	UOM	Unit Mass (g)	Туре	Substance Name	CAS	Compliance Status	Rule Category	Substance Present?
-	7 5	7 5	ۍ ت	7 7	7	7	7 7		2 7	' 7	V	V	7
0	C16				1	each	9.048407276168	Group	Mercury/Mercur		Passed		Not Present
1	1001-150		RM83Z1JT		1	each	5.236837	Group	Mercury/Mercur		Passed		Not Present
2	0022-10036-02	Venkel	C0603C0G500-220JNF		15	each	0.0047	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-10	AVX	TAJA106K010R		8	each	0.0314	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-005	MAXIM INTEGRATED P	MAX811TEUS+T		10	each	0.0091933	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-12	ON SEMI	1SMB170AT3G		2	each	0.10145	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-18	NICCOMP	NMC0805NPO102J1		4	each	0.00807	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-20	ROHM	RLS4148TE11C		2	each	0.02367	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-24	SAMTEC	SMM-132-02-S-S		2	each	0.64595	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-32	SAMTEC	TSM-110-01-L-DV-P		2	each	1.28847	Group	Mercury/Mercur		Not Applicable		Not Present
2	0022-10036-54	ON SEMI	1N4935G		1	each	0.25082	Group	Mercury/Mercur		Not Applicable		Not Present



From the "**Compliance Status**" column in our example, GDM has reported several items in the BOM are "**Not Applicable**" to the battery rule. Simply filter out non-applicable parts by clicking on the reverse triangle, as shown below, select "Not Equal To", and type on the first row of the selected cell as "Not Applicable." GDM will display all battery parts (parts with battery commodity codes assigned) as shown below.

Action Panel BOM Profile: BOM IP: C16 BOM ID: C16 BOM Name: Control Board M609, DIV-16-1 Revision: EC Number: EC Number:						Silercury (elect Multiple Substar Compounds	nces as de	fined by a Rule	G	enerate Close					
Exclu	Exclude parts with incomplete information Number of items shipped/year: 1 Include 2nd Source															
Level	BOM ID/Internal PN	Manufacturer	Manufac	cturer PN	2nd	Qu	UOM	Unit Mass (g)	Туре	Substance Name	CAS	Compliance Status	Rule Category	Substance Present?	Aggregate (ppm)	Aggregate Mass
V	7	? 5	7	2	7 7	V	, A	, A	. 2	7 7		7 not applicable 🛛	2	7 7	, T	,
0	C16					1	each	9.048407276168	Group	Mercury/Mercur		Passed		Not Present	0.000	0.0000000
1	1001-150		RM83Z1JT			1	each	5.236837	Group	Mercury/Mercur		Passed		Not Present	0.000	0.0000000
1	1001-250					2	each	1.905785138084	Group	Mercury/Mercur		Passed		Not Present	0.000	0.0000000
2	1057521	Varta	55602 302	2 014		1	each	1.3	Group	Mercury/Mercur		Passed	EU RoHS Not Co	Not Present	0.000	0.000000000

The resulting filtered report shows one part from "Varta" is restricted under the battery rule on Mercury, and it does not contain any Mercury, resulting in the compliance status set at "Passed."

Step-6: Compliance Validation on BOM: Labeling

The same type of validation can be performed to determine if the designated BOM is subject to labeling requirements under the Battery Directive.

Select the desired BOM from the BOM List, and click on "**Compliance Report**", as shown below.

BOM	BOM List View the status of all BOMs on this BOM List page. (Note: Inclusion of 2nd source parts for computation only affects Compliance Status.)												
Searc	Search Panel												
BOMI	D:		Project Name:			Search	Reset	Close	e				
BOM	Name:		Location: <not select<="" td=""><td>ed></td><td>~</td><td></td><td></td><td></td><td></td><td></td></not>	ed>	~								
Actio	Action Panel												
Impor	t - Import a BOM from the Excel	file. Import	<u>SVHC Report</u> Subs Disclosure Report Custo	tance Analysi: mer Complian	s Report	Compliance Report G China RoHS Report B	<u>rand Report</u> ulk Grand Report	Substance N	<u>'arts Expo</u> Iatrix Rep	<u>t</u> ort			
View	View BOM Details on the selected BOM. View Buk Acto Processing Compliance Summary Report EU RoHS MCV Report Family Grand Report View Subassembles												
Delet	e - Delete the selected BOM from	m the list. Delete	Re-Import BOM Report Import Documents	rtable REACH	I SVHC	CA Prop 65 Report E	xplode BOM	Implode BOI	M				
Sumn	nary												
Numb	er of BOMs listed / total: 10 / 1	0 Export BOMs List	Product CMRT Product Bu	CMRT List	of Products/l	User defined CMRT S	CIP Management						
BOM	List												
•:0)K/Passed 😑 : Not Ready/F	ailed 🔉 : Invalid Entry/In	icomplete 🛛 🕘 : Document B	xpired 😑:	Passed with	Exemption 🗖 : Subpa	art Info Incomplete	📕 : Subpa	rt Failed	○ : Not Applicable			
#	BOM ID	BOM	Name	Revision	Project	Match Status	Requirement	Status	Edit	Published/Exploded Date			
1	1076-601AB			•	•		- 🗹						
2	AT1015	Wireless Router		A2	Advantage	•	•		- 12				
3	ATM-1	Remote Terminal Monitor -	ver 33			•	•		- 1				
4	C15	Control Board M590, DIV-1	5-1			•	•		E -				

Select the "Battery – Labeling" and click on "Select", as shown below.

Rule Selection									
Rule Selection: Select a rule for which you would like to generate compliance report. Select Close									
Rule Name	Category	Rule Description							
AD-DSL List of Substances Group 3 (2017		v2.0 - Substances that are regulated and have the potential to be prohibited or							
Battery - Labeling	Battery	Crossed Wheelie Bin for each substance should be used if the battery contains							
Battery - Prohibitions - Cadmium	Battery - Portable Batter	All portable batteries or accumulators containing more than 0.002% of Cadmiu							
Battery - Prohibitions - Mercury	Battery	All batteries or accumulators containing more than 0.0005% of Mercury by wei							
California Proposition 65 (2018-10-	26) (for	[12 Substance Groups + 854 Substances] Reference: Proposition 65 - Safe Drin							

GDM will then examine all 3 substances – Cadmium, Mercury, and Lead for labeling, and show the result in the table below.

BOM Compliance Report Generates a compliance report for the selected Rule. You could then export the report to Excel. Double-click a row to generate the Substance Analysis Report.										
Action Panel BOM Profile: * Mass has been calculated by aggregation. Rule Profile:										
BOM ID: C15-Simple BOM Name: Control Board M590 , DIV-15-1 Revision: Mass (g): 636.1564122			 Rule Name: Battery - Labeling Rule Type: Article Level Category: Battery Exclusion Category: Rule Description: Crossed Wheelie bin for each substance should be used if the battery contains Mercury of more than 5ppm, or Cadmium of more than 20ppm, or Lead of more than 			the substance ry of more than ead of more than	Generate Close Export Failure Analysis Exclude parts with incomplete information Include 2nd Source			
Item No	Туре	Substance Name	CAS Number	Threshold	Units	Compliance Status	Concentration (ppm)	Weight (mg)		
V		γ ,	7 7	7 7	. V	, T	7	7		
1	Group	Cadmium/Cadmium Compounds		20.000	ppm	Failed	148.628	94.5505000		
2	Group	Lead/Lead Compounds		40.000	ppm	Passed	0.000	0.0000000		
3	Group	Mercury/Mercury Compounds		5.000	ppm	Passed	0.000	0.0000000		

As shown in the result table above, the BOM contains Cadmium in amounts greater than 20ppm within a battery, and per the Battery Directive, should be labeled as shown to the right.



Conclusion

GDM is structured to provide rapid, detailed validation of parts and products to EU Battery Directive requirements. Using commodity codes, GDM can perform this task by automatically identifying specific battery types and perform a targeted, detailed product compliance analysis. Assignment of part categories can be aligned with an ERP/PLM/PDM systems to maximize efficiency.

It should be noted that there are few applications which are exempted from EU Battery Directive restrictions. This includes **batteries** used in vehicles to which the ELV Directive (2000/53/EC) applies, and **portable batteries** for medical equipment, emergency lighting, and emergency and alarm systems. Batteries used in these applications should be identified and designated exempt in GDM. Once the actions in this paper are taken in GDM, compliance with the EU battery directive can be demonstrated with ease.