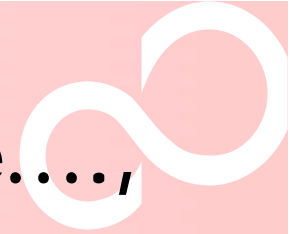


# For Environment, for RoHS Compliance....,



What are PBB and PBDE?

What materials do contain Lead, Cadmium...?

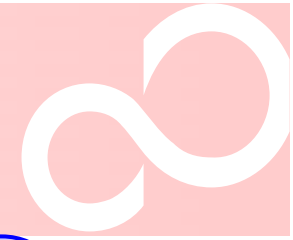
How to check efficiently within limited time span?

***Consult Fujitsu group's  
Technical report!***

*"Risk of RoHS restricted substance contained approached  
from Material point of view"*

Issued by Fujitsu Quality Laboratory Limited





**1. Introduction .....1**

1.1 Background of Possibility of containing restricted substances.....2

Features

- Concise summarization; “Which restricted substance” is contained in “which material” for “what objectives”?, on various material for electric appliances
- Provide reference web site for accessing to detailed information.
- Incorporate abundant Analysis results Fujitsu Group’s are proud of.

2.1.1 Pb contained in metal.....14

2.1.2 Pb contained in Solder (including terminal plating)..... 14

2.1.3 Pb contained in plating film (Except for terminal plating) ..... 18

2.1.4 Pb contained in Resin, Coating, or Ink (colorant) ..... 20

**Critical Points are red high-lightened**

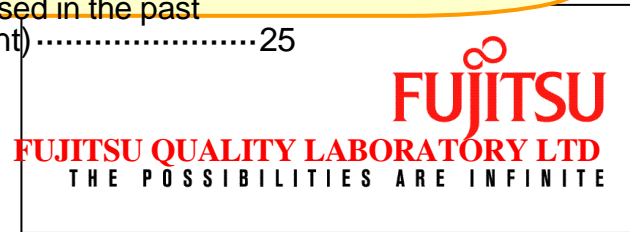
2.2 Cadmium (Cd) Usage status .....25

2.2.1 Cd contained in metal and Solder .....25

2.2.2 Cd in plating film (Includes Surface treatment of connecting point) .....25

2.2.3 Cd in Resin, Coating, Ink (pigment) .....25

**attention must be paid to the recycled paper.** Fujitsu Quality Laboratory LTD detected Pb and Hexavalent Chrome in some of analyzed recycled papers; the suspected cause is confusion of ink used in the past



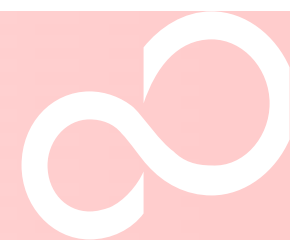


Table 1 - 1 Potentiality of Containing RoHS restricted Substances

Constituent element		Pb	Cd	Hg	Cr <sup>+6</sup>	PBB/PBDE
Metallic material*	Steels	0.35wt%				
	Aluminum	0.4wt%				
	Copper	4.0wt%	Brass			
	Magnesium					
	Other					
Solder plating (Solder material)						
Surface Chemical conversion						
Resin	Thermoplastic (CHONs)					
	Thermoset (CHONs)					
	Chloric resin(PVC)					
	Fluorocarbon resin					

Potentiality shown in Color

May serve as an Employee education tool..

Plastic that does not require PBB/PBDE

Flame-resistant Plastic does not require flame retardant. On the other hands, several Plastic does not use low-molecular flame retardant additive because of the adverse effect on resin property. From the "requisite" standpoint, **potentiality of PBB/PBDE added to material followings is practically "Zero"**.

Plastic of Flame resistant nature

- Plastics below are flame resistant because: Resist thermally decomposed, Generated gas is nonflammable
- Silicone rubber:** Bridged structure inhibit gasification, Low carbon content, Residual SiO<sub>2</sub> covers surface
- Fluorocarbon resin (Teflon, etc):** Resist thermally decomposed, Decomposed gas is inflammable
- Polyimide:** Resist thermally decomposed

PVC: Decomposed gas is inflammable

Pure vinyl chloride is inflammable, while that with high content of plastic material is flammable

Electric components

Prefer to use epoxy resin as plastic; IC mold, PCB etc. For electric components, the most concern material is reaction type Brominated epoxy. PBB/PBDE, low-molecular type, are not of concern, since low-molecular type flame retardant is not used. High-molecular type flame retardant is used. High-molecular type flame retardant is not used. High-molecular type flame retardant is not used.

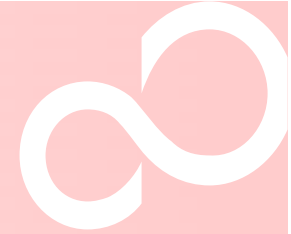
Table 2.6.1-2 Hexavalent Chrome Elution from chromate film

No.	Surface treatment	Base material	Hexavalent Chrome Elution												
			Fe	Al	Cu	Bs	SEIS	ABS	ADC 12	AZ 910	...	...			
1.	Chromate/Metal Ni plating /Base material														
2.	Chromate/Electroless Ni-P/Base material														
3.	Aroclor 1000/Al														
4.	Aroclor 1200/Al														
5.	Inclite /Al														

Our analysis result

## Intention of Sale

To realize complete abolishment of restricted substances, provide our customers/suppliers with this report to serve to efficient realization of RoHS compliance;  
- the mission of the entire industry.



## To order

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