

Accommodating the RoHS* Directive

In order to respond rapidly to the EU's environmental regulations, Murata is promoting a systematic response that focuses on a voluntary regulation of chemical substances.

The Project to Accommodate the RoHS Directive

The EU has issued the RoHS Directive limiting the use of lead, mercury, hexavalent chromium, cadmium, and brominated flame retardants (PBB and PBDE) in electrical and electronic equipment sold in the EU. Each country in the EU region has enacted laws that comply with this directive. Moreover, with the adoption of the ELV** Directive and with countries outside the EU zone considering the adoption of regulations similar to the RoHS Directive, it is clear that the trend is toward increasingly stringent regulation of environmentally hazardous chemical substances contained in electronic parts.

At Murata, we are incorporating activities aimed at reducing the use of environmentally hazardous substances in line with our "Product Regulation Program for Environmentally Hazardous Substances." In January 2004, our product group completed its efforts to comply with the RoHS Directive for regulated substances. This group accounts for 66% of all Murata products.

We have already eliminated the use of certain brominated flame retardants and mercury; as for hexavalent chromium and cadmium, there remain specifications for particular applications that require their use. Regarding lead, we have been promoting the development of technology that contributes to the use of lead-free solder through our "LF (Lead-Free) Solder Project." This initiative was undertaken in 1995 by our Technical Development Department and Product Planning and Design Department, but since August 2003 we have been organizing an RoHS response project that spreads the target of reduction and abolition to "purposes and substances regulated by RoHS"; moreover, we are developing further reduction and abolition activities.

*The restriction of the certain hazardous substances in electrical and electronic equipment (2002/95/EC)

**End-of-life vehicles directive (2000/53/EC)

The Reduction and Elimination of Lead from Products

A champion of numerous measures to reduce the use of lead from early on, Murata has made progress in its lead reduction efforts, having eliminated lead from terminal plating and from the surface of soldered terminals. Additionally, we have begun supplying lead-free and reduced-lead products to the market.

Within the electronic component industry, demand has been increasing for the lead-free approach, particularly as a result of initiatives by electronic equipment manufacturers to adopt lead-free solder assembly, green procurement, and product assessment activities. By matching the lead content of our products to the content regulations according to the RoHS Directive, Murata has been responding to this trend in a timely manner.

1. Elimination of lead from solder used in products, from stabilizers for polyvinyl chloride, and from surface finishing/plating

As part of Murata's voluntary prohibition, we intend to use lead for the purposes regulated by the RoHS Directive and will discontinue its use by July 2006, when the RoHS Directive on lead comes into effect.

Regarding the use of lead in surface finishing and plating of terminals, we have been supplying products that meet the substitute specification since April 2001. Murata's Lead Elimination Activities catalogue provides information on the lead-free composition of our main products, sample applications, mass production, and model number changes. This information is also available on Murata's website (www.murata.com/catalog/index.html).

In addition, we provide electronics makers with evaluation data on the packaging of products that are required to incorporate lead-free solder.

2. Reducing the lead content in glass, high-melting-point solder, ceramics, and free-cutting alloys

These parts are exempt from the lead prohibition targets under the RoHS Directive because substitution presents extreme technical difficulties. However, at the same time we are pursuing the development of substitutes, we are advancing the reduction and elimination of the total amount in use while seeking the cooperation of suppliers.

Notably, eliminating lead from ceramics presents difficulties in the early stages. While incorporating the developments of substitution technology on the one hand, we will reduce the amount of lead in use by miniaturizing our products. Simultaneously, we are continuing to reduce the environmental burden.

Furthermore, we have sought to patent the technologies developed through our lead-free initiatives and have actively put them to practical use. Some have been licensed to third parties.

Examples of Lead Free Products



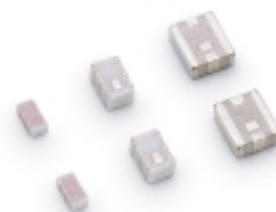
Chip Monolithic Ceramic Capacitors
(Safety Standard Recognized Ceramic Capacitors)



Trimmer Potentiometers
(PVZ2A Series etc.)



Chip Coils
(LOG18H Series etc.)



Multilayer Devices
(LDC/LDB/LFB2H Series, etc.)