



Bel Fuse Inc.
206 Van Vorst Street
Jersey City, NJ 07302 USA
www.belfuse.com
tel 201.432.0463
fax 201.432.9542

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Lead Free Initiative and Elimination of Banned Substances

Bel and its subsidiaries are committed to meeting established target dates for the elimination of lead and other banned substances from our products. To insure that our customers will be able to meet the July 1st 2006 deadline set for the elimination of these substances, we have committed to being in compliance at least one year earlier. Our internal compliance deadline is currently July 1st 2005 however, we are working to bring this date in to January 1st 2005. Currently, our efforts are directed toward meeting the January 27, 2003 **European Directive 2002/95/EC**, calling for the elimination of Lead, Mercury, Cadmium, Hexavalent Chromium, PBB (polybrominated biphenyls) and PBDE (polybrominated diphenyl ethers) from electronic products.

We are monitoring other legislative requirements, and we will address these as soon as their content and underlying definitions have been finalized. A case in point is the formal definition of exactly what constitutes a "Lead Free" Product. We define "**Lead Free Products**" as products in which the aggregate lead content will be less than/equal to 0.1% by weight. A **RoHS** compliant product is currently defined as one with less than/equal to 0.1% Lead, 0.1% Mercury, 0.01% Cadmium, 0.1% Hexavalent Chromium, 0.1% PBB and 0.1% PBDE.

Over the past three years, our company as a whole, and our Lead Free Team in particular, have been conducting product evaluations in search of possible substitutions of raw materials, and adopting alternative (greener) manufacturing processes. We've chosen our standard lead free solder to be nominally 95% Sn, 3.8% Ag, 1.0% Cu (brand name Sn96CI). Bel has developed a **RoHS** compliant qualification procedure, based on available industry research, along with an understanding of the critical elements associated with the required material and process changes. Each product family will undergo this qualification testing prior to being deemed ready for production. As we introduce **RoHS** compliant designs, Bel will concurrently manufacture products compatible with lead free and eutectic soldering processes. This will allow us to support our customers' requirements throughout their transition to lead free manufacturing.

Several challenges remain especially with regard to our surface mount components' ability to reliably survive the increased temperature stress seen during lead free soldering processes. Nonetheless, we remain committed to the objective that our components meet the IPC/JEDEC J-STD-020B classification and assembly reflow profile. Our internal qualification tests are performed only after preconditioning the SMD product twice through a reflow process that peaks at 260°C. In some cases, it may be necessary to use a solder composition that contains greater than 85% lead for internal solder joints of SMD components to ensure compatibility with an elevated temperature reflow profile. Such internal solder connections are permissible due to the exemption listed in the European **Directive 2002/95/EC Annex (paragraph 7)**.

As an ISO 14001 certified company, Bel acknowledges our commitment to protect the environment and the future of our planet. We invite you to visit our web site www.belfuse.com for the latest information regarding our [RoHS initiative](#).

Sincerely,

Joe Berry
Engineering Manager