

## RoHS, WEEE and ELV

Like many suppliers, Anixter receives frequent inquiries from customers regarding the environmental, health and safety characteristics of our products. These inquiries are most often the result of government regulations which ban or limit the use of certain substances in commercial products in various parts of the world. This Wire Wisdom provides a summary of three key regulations that apply to products used in the European Union. Because many OEM wire and cable products sold by Anixter in North America and elsewhere are ultimately used in the EU, compliance with these regulations (called “directives” in Europe) is essential for many of our customers.

### RoHS and WEEE

The RoHS and WEEE directives (Directives 2002/95/EC and 2002/96/EC) are two European Union regulations that require the elimination of certain heavy metal and bromine substances from electrical and electronic equipment by July 1<sup>st</sup>, 2006. RoHS (sometimes referred to as “roe haas”) is an acronym for “Restriction of Hazardous Substances” and WEEE (rhymes with “flee”) stands for “Waste Electrical and Electronic Equipment”. Together, the two directives are intended to promote the recycling of electrical and electronic equipment by reducing their hazardous substance content. To that end, these directives limit the use of six substances as shown in the table below. Of the six regulated substances, lead is the only one that is commonly used in the wire and cable industry. Lead oxide (Litharge) is sometimes used in cable insulation and jacket materials such as PVC (polyvinyl chloride), neoprene, Hypalon<sup>®1</sup>, EPR (ethylene propylene rubber) and CPE

(chlorinated polyethylene) to improve electrical performance in wet conditions as well as to improve other properties. However, because of the many

<u>Substance</u>	<u>Maximum Amount Permitted in Parts per Million (PPM)</u>
Lead (Pb)	1000
Cadmium (Cd)	100
Mercury (Hg)	1000
Hexavalent Chromium (CrVI)	1000
Polybrominated Biphenyl (PBB)	1000
Polybrominated Diphenyl Ether (PBDE)	1000

environmental regulations banning or controlling the use of lead, the industry is working to find acceptable lead-free alternates. In many cases, lead-free alternates are already available by using wire and cable made with materials such as PE (polyethylene), XLP

<sup>1</sup> Registered Trademark of DuPont Dow Elastomers

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(cross-linked polyethylene), PP (polypropylene), FEP (Teflon<sup>2</sup>) or ETFE (Tefzel<sup>3</sup>). These materials are inherently RoHS compliant unless additives are introduced into them. Many currently “leaded” materials can also be reformulated to be lead-free at a reasonable cost and without significantly degrading performance.

Additional information on the RoHS and WEEE directives can be found on the internet at: <http://europa.eu.int/scadplus/printversion/en/lvb/l21210.htm>.

## **ELV**

The ELV directive (Directive 2000/53/EC) is aimed at increasing the recyclable content of vehicles manufactured or sold in the European Union. ELV is an acronym for “End of Life Vehicles”. This directive only applies to components used in automotive vehicles—such as automotive wire and cable. It went into effect July 1, 2003 and bans or limits the use of lead, mercury, cadmium and hexavalent chromium. As a rule of thumb, XLP (cross-linked polyethylene) insulated automotive wire such as SAE (Society of Automotive Engineers) types SXL, GXL and TXL comply with this directive. However, PVC insulated automotive wire types such as GPT, TWP, SGT and SGX may contain lead and may not be compliant unless specifically requested in purchase specifications. This directive limits the use of the four substances shown in the table above.

<b><u>Substance</u></b>	<b><u>Maximum Amount Permitted in Parts per Million (PPM)</u></b>
Lead (Pb)	1000
Cadmium (Cd)	100
Mercury (Hg)	1000
Hexavalent Chromium (CrVI)	1000

Additional information on the ELV directive can be found on the internet at: [http://europa.eu.int/comm/environment/waste/elv\\_index.htm](http://europa.eu.int/comm/environment/waste/elv_index.htm).

## **In Summary**

The growing need for products that are free of potentially hazardous substances is likely to continue. In the case of wire and cable products, they are usually already available, will soon be available or are available by special order to replace products that no longer comply with increasingly strict government regulations around the world.

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<sup>2</sup> Registered Trademark of the DuPont Company

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