



Solutions for the European Union (EU) RoHS/WEEE Directive

GBC Scientific can help you with compliance with the European Union (EU) directives on the Restriction of the use of hazardous Substances (RoHS) and on Waste Electrical and Electronic Equipment (WEEE) (Directives 2002/95/EC and 2002/96/EC, respectively).

Effective July 2006, the new directives severely restrict the use of cadmium (Cd), lead (Pb), mercury (Hg), and hexavalent chromium, that are used in many electrical and electronic products. Additionally, these directives apply to the disposal of these controlled products when no longer in use. These directives follow other regulations aimed at environmental protection issues, such as EU Directive 76/769/EEC that lists 47 dangerous materials and substance classifications.

The RoHS directive applies to electronic and electrical equipment manufacturers, their supply chain, and consumers. The requirements are stringent, calling for companies that manufacture, distribute, and/or sell regulated equipment into the EU to determine if restricted substances are present and, if so, whether the levels are within acceptable concentration limits. Adding to the challenge is the lack of uniform global standards and methods to analyze these substances. Toward that end, the American Society for Testing and Materials (ASTM) has formed a committee (F-40) to create standardized test methods for these restricted substances.

GBC Scientific Equipment can help you to address these issues. We can assist you with chromatography and spectroscopy products for the analysis of Cd, Pb, Hg and hexavalent chromium.



AAS



HPLC



ICP-OES



ICP-MS



Rheometry



UV-Vis



XRD



	ICP-MS	ICP-OES	Flame AA	Furnace AA
Elements	116	75	68	50
Isotope Analysis	yes all	no	no	no
Detection Limits	ppt	ppb	ppb/ppm	ppb
Sample Throughput	All masses 45 sec/sample	30 elements <4 min/sample	1 element 9 sec/sample	1 element 2 - 3 min/sample
Linear Dynamic Range	10 ⁷	10 ⁶	10 ³	10 ²
Precision	0.5 - 2%	0.3 - 2%	0.1 - 1%	1 - 5%
Interferences				
Spectral Matrix	few	common	almost none	few
ionization	moderate	almost none	moderate	many
Mass Effects	minimal	some	some	minimal
Isotope	some	NA	NA	N/A
Methodology	yes	none	none	none
Dissolved Salts	<10%	<40%	<20%	>20%
Sample Consumption	low	moderate/high	high	very low
Semi-Quant	yes	yes	no	no
Retrospect Semi Quant	yes	no	no	no
Fingerprinting	yes	no	no	no
Method Development	moderate	moderate	easy	difficult
Data Interpretation	moderate	moderate	easy	easy
Routine Operation	moderate	easy	easy	easy
Unattended Operation	yes	yes	no	yes
Operating Costs	medium/high	medium	low	medium
Combustible Gases	no	no	yes	no



AAS



HPLC



ICP-OES



ICP-TOFMS



Rheometry



UV-Vis



XRD

Sensitive Technology for a Sensitive World

GBC

SCIENTIFIC EQUIPMENT