**BACKGROUND**

Compliance with RoHS (Restriction of Hazardous Substances Directive) is an important issue in manufacturing today. RoHS has been evolving since its original adoption in the EU as RoHS 2002/95/EC in 2003. Its full name is “Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.”

As the full name indicates, RoHS applies to finished electrical and electronic equipment. The maximum tolerated concentration of Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr6+), Polybrominated Biphenyls (PBB), and Polybrominated Diphenyl Ether (PBDE) is 0.1% in homogeneous materials and for Cadmium (Cd) is 0.01%. Other regulated materials include:

- Bis(2-ethylhexyl) phthalate (DEHP)
- Butyl benzyl phthalate (BBP)
- DIBUTYL phthalate (DBP)
- Diisobutyl phthalate (DIBP)

The four phthalates listed above were added as part of Directive (EU) 2015/863, published in 2015. The maximum tolerated concentration of each of these is 0.1% and regulation of these additional four substances will be applied in 2019. There are over 80 exemptions, including automobiles and some medical devices. The exemption of these medical devices will expire in 2021.

In addition to the above chemical / elemental restrictions, products regulated by RoHS 2 must display the “CE” mark to indicate RoHS compliance.

**CHALLENGE**

The challenge was screening components quickly, efficiently, and accurately. The manufacturer needed a robust audit trail and the ability to capture high-resolution sample images to support that audit trail. But most importantly, they needed to increase testing frequency while reducing the potential costs of non-compliance and additional testing.

**SOLUTION**

The manufacturer chose HD Mobile® portable handheld XRF analyzer from XOS. Over 75 components were screened in 2-3 hours by one operator, and the small spot size of the analyzer delivered analysis results with pinpoint accuracy. In addition, the mobile test stand enabled hands-free operation for easy use, and high-resolution sample images were captured for each measurement, making a robust audit trail possible. All of these factors eliminated the costs of additional testing and greatly mitigated the risk of non-compliance, offering this manufacturer a high degree of assurance that its products are compliant and its brand is secure.

**RESULT**

Using HD Mobile portable handheld XRF analyzer, this manufacturer ensured compliance with confidence. Taking HDXRF technology out of the lab and onto the manufacturing floor, the manufacturer gained the accuracy of HDXRF with the portable convenience and flexibility of a handheld analyzer.