



14.03.2024

## Subject: Hazardous Substances/Substances of Concern

To Whom It May Concern:

Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (ERDEMİR) do not routinely analyze for presence of following hazardous substances to control the impact of environmentally sensitive material getting into our steel products.

- Lead, Mercury, Cadmium, or Chromium+6,
- Ozone depleting chemicals,
- Environmentally persistent transformer fluids (Polychlorinated Biphenyls, PCBs) or flame retardants (Polybrominated Biphenyls, PBBs, etc.)
- Dibutyl Phthalate (DBP)
- Diethyl Hexyl Phthalate (DEHP)
- Benzyl Butyl Phthalate (BBP)
- Diisobutyl Phthalate (DIBP)

Because, they are not a part of the manufacturing process, add no inherent quality to the product, and are typically, if present, below threshold concentrations.

1. Lead and Cadmium, due to the manufacturing process, are inherent in the steel as a tramp material and in most cases be present at less than 0.001 % per weight. Mercury, if present, would be less than 0.0001 % per weight. Chromium is routinely added to certain steel products, but steel manufacturing process prevents the formation of the Cr+6 phase in the final product. Cr+6 may be present at less than 0.001 % per weight. This conclusion is confirmed by our laboratory and an independent testing laboratory, SGS Laboratory accredited by the TURKAK (Turkish Accreditation Institution). RoHS Test was performed according to Rohs 3 Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.
2. Ozone depleting chemicals and environmentally persistent transformer fluids / flame-retardants are not a part of the steel manufacturing process and would not survive in the steel manufacturing process. These hazardous chemicals are not added as a part of the post manufacturing process.



### EREĞLİ DEMİR VE ÇELİK FABRİKALARI T.A.Ş.

Uzunkum Caddesi No: 7  
Kdz. Ereğli 67330 Zonguldak TURKEY  
T: +90 372 323 2500 - F: +90 372 333 1500  
www.erdemir.com.tr

Trade Registry Number:  
İstanbul-863637 Ereğli-1574/272

Mersis Number:  
0352000642600020

KEP Number:  
erdemir@hs01.kep.tr



**RoHS Proposed Maximum Limits were approved by EU council in 2011.**

**EU RoHS specifies maximum levels for the following 10 restricted substances. The first six applied to the original RoHS while the last four were added under RoHS 3, which took effect July 22, 2019.**

SUBSTANCE	LIMITS
Cadmium (Cd)Content	0.01 % (100 ppm)
Lead (Pb) Content	0.1 % (1000 ppm)
Mercury (Hg) Content	0.1 % (1000 ppm)
Chromium VI (Cr+6)Content(ppm)(for non metal)	0.1 % (1000 ppm)
Chromium VI (Cr+6)Content( $\mu\text{g}/\text{cm}^2$ )for metal)	Colorimetric result < 0.10 $\mu\text{g}/\text{cm}^2$ $\geq 0.10 \mu\text{g}/\text{cm}^2$ and $\leq 0.13 \mu\text{g}/\text{cm}^2$ > 0.13 $\mu\text{g}/\text{cm}^2$ Qualitative Result Negative Inconclusive Positive
PBB	0.1 % (1000 ppm)
PBBDE	0.1 % (1000 ppm)
Dibutyl Phthalate (DBP)	0.1 % (1000 ppm)
Benzyl Butyl Phthalate (BBP)	0.1 % (1000 ppm)
Diethyl Hexyl Phthalate (DEHP)	0.1 % (1000 ppm)
Diisobutyl Phthalate (DIBP)	0.1 % (1000 ppm)

Testing Item	Testing Method	MDL
Cadmium (Cd)Content	With reference to IEC 62321-5:2013, determination of Cadmium by ICP-MS/ICP-OES. <sup>1</sup>	2 ppm
Lead (Pb)Content	With reference to IEC 62321-5:2013, determination of Lead by ICP-MS/ICP-OES. <sup>1</sup>	2 ppm
Mercury (Hg)Content	With reference to IEC 62321-4:2013+A1:2017, determination of Mercury by ICP-MS/ICP-OES. <sup>1</sup>	2 ppm
Chromium VI (Cr6+) (For non-metal)	With reference to IEC 62321-7-2:2017, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis. <sup>1</sup>	8 ppm
Chromium VI (Cr6+) (For metal)	With reference to IEC 62321-7-1:2015, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis. <sup>1</sup>	0.1 $\mu\text{g}/\text{cm}^2$ with 50 $\text{cm}^2$ (IN TESTING SOLUTION)
PBBs/PBDEs	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS. <sup>1</sup>	5 ppm
Phthalates	With reference to IEC 62321-8:2017, determination of phthalates by GC-MS. <sup>1</sup>	50 ppm



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3. Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (ERDEMİR) routinely scrutinizes to detect the radioactivity levels of scrap that getting into our steel products (radioactivity detection is accomplished in accordance with "The Instructions of Controlling Radiation Level of Scrap"). This detection is carry out by use of portable and fixed detection equipment. Monitors are installed to control the possibility of errant radioactivity from scrap to contaminate our steel products. Radioactivity detection is also done for every heat in steel making process. Radiation levels are below threshold concentrations or no inherent quantity for both scrap and samples of liquid steel. Typical measured radiation level is less than 22  $\mu$  rem / hr (specification max: 40  $\mu$  rem/ hr).

If you have any questions, please advise.

Best Regards,

**Serkan DİKEÇ**

Quality Metallurgy  
Manager

**Sinan BOZKURT**

Executive Vice President  
Operations

Contact e-mail [ktanriover@erdemir.com.tr](mailto:ktanriover@erdemir.com.tr), [iakdumbek@erdemir.com.tr](mailto:iakdumbek@erdemir.com.tr)



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