

# Data Sources Underlying the Computer Electronics Environmental Benefits Calculator - Mobile Telephone Data

The full criteria can be found online at <https://www.epeat.net/resources/criteria-2/>

Baseline Assumptions for Conventional Products for End-of-Life (EOL)				
Criteria	Attribute	Value	Reference*	Notes
EOL	Average weight of product	0.21 kg	Swico Recycling, 2016.	Calculated based on >700,000 cell phones being recycled.
EOL	Average weight of battery	0.07 Kg	MPPI, 2009.	Assumes battery is 1/3 of weight of mobile phone (MPPI, 2009). The weight of the battery is subtracted from the mass of the phone for reuse calculations, since the battery is usually recycled rather than reused with the handset (MPPI, 2009). Battery weight is also subtracted from the weight of the phone to calculate material composition of the phone (without the battery).
EOL	Average lead content per unit	0.327 g	Wu, et. al., 2008.	Calculated metal-to-phone weight ratio from Wu 2008 and applied this factor to the weight of the phone.
EOL	Average mercury content per unit	0 g	Nokia, 2005; MPPI, 2006b.	Currently no mercury in mobile phones. Mercury was used in fluorescent tubes to light displays in older phones.
EOL	Average cadmium content per unit	0 g	Lindholm, 2003; Townsend et al., 2004; CA DTSC, 2004b.	Cadmium is not present in mobile phones at level greater than 0.1% by weight (Lindholm, 2003,) nor was cadmium detected by Townsend et al., 2004 or CA DTSC, 2004b. Nickel cadmium batteries are no longer used in mobile phones, although may be found in older phones still in use (Nokia, 2005). As of 2000, Ni-Cad batteries were used in 15% of mobile phones (Fishbein, 2002.)
EOL	Average hexavalent chromium content per unit	0 g	Wu, et. al., 2008.	Calculated metal-to-phone weight ratio from Wu 2008 and applied this factor to the weight of the phone (row 194). Assumes all Cr is Cr+6
EOL	Average PBB content per unit	0 g	MPPI, 2006b.	PBBs have not been used in mobile phones (MPPI, 2006b). TBBA used in PWB is most common brominated flame retardant in mobile phones (Nokia, 2005.)
EOL	Average PBDE content per unit	0 g	Lindholm, 2003.	PBDE was not listed as a constituent of mobile phones at a level greater than 0.1% by weight (Lindholm, 2003.)
EOL	Average hazardous waste content in unit (total)	0.0433 kg	Swico Recycling, 2016.	Includes PWBs only; assumes PWBs contain lead.
EOL	Average weight of printed wire boards	0.0433 kg	Swico Recycling, 2016.	PWBs are 20.6% of product mass and applied this factor to the weight of the phone. Assumes PWBs contain lead.
EOL	Average weight of copper per unit	0.00000	Wu, et. al., 2008.	Calculated metal-to-phone weight ratio from Wu 2008 and applied this factor to the weight of the phone (row 194).
EOL	Average weight of palladium per unit	0.00000	Wu, et. al., 2008.	Calculated metal-to-phone weight ratio from Wu 2008 and applied this factor to the weight of the phone (row 194).
EOL	Average weight of silver per unit	0.00000	Wu, et. al., 2008.	Calculated metal-to-phone weight ratio from Wu 2008 and applied this factor to the weight of the phone (row 194).
EOL	Average weight of gold per unit	0.00000	Wu, et. al., 2008.	Calculated metal-to-phone weight ratio from Wu 2008 and applied this factor to the weight of the phone (row 194).
EOL	Average weight of precious metals per unit	0.00000	Calculated.	Includes palladium, silver, and gold.
EOL	Plastics	49.9%	Wu, et. al., 2008.	Percentage mass of plastics plus epoxy compared to total weight of sample.
EOL	Ferrous metals (steel)	6.4%	Wu, et. al., 2008.	Percentage mass of iron compared to total weight of sample.
EOL	Copper and its compounds	8.7%	Wu, et. al., 2008.	Percentage mass of copper compared to total weight of sample.
EOL	LCD Glass	12.6%	Wu, et. al., 2008.	Total percentage of ceramics.
EOL	Precious Metals	-		

EOL	Other	22%	Wu, et. al., 2008.	Calculated as the difference between 100% and the sum of lines 214 through 217.
EOL	% material collected for recycling that is recycled	100%		EPA assumption.
EOL	% material collected for recycling that is reused	0%		EPA assumption.

## \* REFERENCES

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