



Cradle to Cradle® Certification Testing Requirements

The following tests are required regardless of the anticipated certification level.

Materials to be tested:

1. All recycled content coming from unique recycling streams including: paper, polymers (including fabrics), metals and glass
2. Any material (recycled or not) produced in regions of the world shown to have heavy metal contamination issues or concerns. This includes any material that makes up 100 ppm or higher of the finished product. These materials may not be identified until MBDC works out the supply chain.

Exception:

If your recycled material supplier(s) are testing the material at the detection limits and intervals specified below, these tests might take the place of MBDC's requirements. To be eligible for this replacement, MBDC must be provided with a contact at the laboratory carrying out the said tests and review documentation on the test methods used and detection limits achieved.

Post-industrial waste of known origin and content is not defined as recycled content

Testing Intervals:

All materials must be tested on an annual basis at the time of certification or certification renewal. Recycled paper content must be tested on a quarterly basis.

Contaminants to be tested for:

All materials listed above must be tested for the following metals:
Sb, As, Be, Cd, Cr, Co, Pb, Ni, Mn, Hg, Bi, Sn and Mo

Recycled polymers and paper must also be tested for halogenated hydrocarbons (bromine, chlorine and fluorine containing compounds)

Detection limits required and test methods to be used

Metals - ICP/MS or ICP/AES (ICP/OES) with detection limits in the low ppm range (25 ppm max, preferred limits ~5ppm or less) Note that if ashing digestion techniques are required, mercury, arsenic and tin may volatilize from the sample, increasing detection limits, though ~5ppm should still be attainable.

Mercury – ICP, or CVAA/direct mercury analysis with detection limits in the low ppm range (25 ppm max, preferred limit ~5ppm or less)

If total chromium is greater than that allowed for the desired certification level, then further testing will be required to determine the amount of hexavalent chromium present using alkaline digestion techniques (most cases) followed by Ion Chromatography (i.e. EPA 3060A/7199). The exact method and technique employed may be subject to the type of material being tested, various experimental conditions, and the laboratory's capabilities.

Halogens – oxygen bomb combustion sample preparation followed by ion chromatography with detection limits in low ppm range (25 ppm max, ~5ppm or less preferred).





For glass and quarterly paper testing – XRF methods may be used (except for the first test each year at which time more detailed testing must be carried out for paper). However, These techniques are considered to be qualitative or semi-quantitative and detection limits are in general higher than those required above. In addition, XRF does not generally pick up fluorine.

Laboratory Reporting

MBDC requests that the laboratories carrying out these tests list the methods used (except for any proprietary sample prep/digestion methods) and detection limits achieved for each contaminant when reporting test results to MBDC.

Estimated Costs

MBDC's clients should contact the labs for a quote specific to their product/materials and for information on how to send in a sample and the sample size needed. Testing costs may range from ~\$250-\$1200+ per sample depending on the material type and test procedures required. Costs per sample will most likely be less for more than one sample.

Lab Selection

MBDC's clients will be allowed to use any laboratories that are able to carry out the tests as outlined above at the required detection limits. These labs must also have the capability to do microwave digestions, as these are required/preferred in some situations. We prefer that these labs be certified to ISO 17025 standards. All labs must first be approved by MBDC. Please provide MBDC with documentation on a lab's methods for review prior to having testing done.

Please note that a list of suggested laboratories is available by request.