



Infineon Requirements for Laboratory Analytical Test Reports

It is the policy of Infineon Technologies AG that suppliers worldwide shall comply with environmental regulations for restricted or banned substances.

Supplier guarantees that all products including substances / mixtures (e.g. molding compounds, plating chemicals, marking inks, solders and die attaches) and articles (e.g. ceramic modules/packages, lead frames, metal covers, bond wires, and substrates) delivered to Infineon Technologies are compliant to delegated Directive 2015/863/EU of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). In its Purchase Specifications Part B Infineon Technologies AG requires its suppliers to provide chemical analysis reports from accredited laboratories to demonstrate compliance.

The requirements shall apply to homogeneous materials, in cured or dry state, even if the product consists of two or more homogeneous materials.

Therefore, supplier shall demonstrate its compliance with the RoHS Directive and the related applicable national laws by providing Inductively Coupled Plasma ("ICP") analysis data from accredited laboratories (EN ISO/IEC 17025) for all supplied products, articles, subparts, components, materials, material preparations, auxiliary production materials and packaging materials. The analysis shall be carried out for Cr(VI), Cd, Hg, Pb, PBB's and PBDE's with reference to IEC 62321 and for phthalates DEHP, BBP, DBP and DIBP according methods such as EN 14372.

Furthermore, the supplier shall provide chemical analysis reports of bromine (Br), chlorine (Cl) and fluorine (F) from accredited laboratories and using methods such as EN 14582, US EPA SW-846 5050/9056, ASTM D 7359-14a, DIN 53474:2017-12 or IEC62321-3-2. This requirement applies to plastic and polymer containing homogenous materials claiming to be halogen-free and fluorine free, such as substrates, molding compounds, encapsulations, glues, solder flux, solder paste, adhesives, coatings, tapes.... The testing of bromine (Br), chlorine (Cl) and fluorine (F) is not necessary for pure metallic homogeneous materials and ceramics.

Additionally, supplier shall provide chemical analysis of Beryllium (Be) according methods such as US EPA method 3050B or US EPA method 3052. This requirement applies to metal alloys containing copper and/or beryllia ceramics.

In addition, supplier shall provide chemical analysis of Antimony (Sb) according methods such as US EPA 3052.

The test report shall present the test results and other relevant information accurately, clearly and unambiguously.

With this document Infineon Technologies defines specific requirements which information shall be included in each chemical analysis report:

- a) Name, address and location of any laboratory involved in the analysis and name of the operator.

- b) Date of receipt of sample, date(s) and number(s) of performed test(s).
- c) The date of analysis shall not be older than one year from the date of submitting to Infineon Technologies.
- d) Unique identification of report (such as serial number) and of each page and total number of pages of the report.
- e) Description and identification of the sample, including a description of any product disassembly performed to acquire the test sample, lot or batch number, total mass and a picture of the analysed sample.
- f) For the RoHS analysis (for Cr (VI), Cd, Hg, Pb, PBB's, PBDE's and phthalates DEHP, BBP, DBP and DIBP) a reference to the IEC 62321 and EN 14372 followed by GC-MS for Phthalates, the method used or performance-based equivalent (including digestion method(s) and test equipment).
- g) For the halogen (Br, Cl, F) analysis a reference to the EN 14582, US EPA SW-846 5050/9056, ASTM D 7359-14a, DIN 53474:2017-12, or IEC62321-3-2, the method used or performance-based equivalent (including digestion method(s) and test equipment).
- h) For the Beryllium analysis a reference to the US EPA method 3050B or US EPA method 3052 used or performance-based equivalent (including digestion method(s) and test equipment).
- i) For the Antimony analysis a reference to the US EPA method 3052 used or performance-based equivalent (including digestion method(s) and test equipment).
- j) The Limit of Detection (LOD) or Limit of Quantification (LOQ).
- k) The results of the test expressed as milligrams / kilogram ("mg/kg") in samples tested.
- l) Signature of the responsible laboratory manager and stamp of the laboratory.
- m) Any details not specified in this standard which are optional, and any other factors which may have affected the results. Any deviation, by agreement or otherwise, from the test procedure specified here.

Corrections or additions to a test report after issue shall be made only in a further document suitably marked, e.g. "Amendment/Addendum to test report serial number (or as otherwise identified)", and shall meet the requirements of the preceding paragraphs.

The analysis reports shall be provided by supplier to Infineon Technologies via e-mail (mailto: ICP-support@infineon.com) as "Supplier Certificate of Compliance" prior to the initial delivery of the relevant products. Supplier shall provide updates of each Supplier Certificate of Compliance on an annual basis and in case of any change in the chemical composition or the production process.