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1.0 Objectives / Purpose

This specification requires the disclosure of Prohibited, Restricted, and Declarable substances. This specification identifies substances that are prohibited from, or restricted in, NXP products and packaging materials and any exemptions that NXP authorizes for the use of such substances; it also identifies substances that NXP has designated as declarable. This specification provides reporting and analytical testing requirements for NXP product and packaging material suppliers for former Freescale portfolio products.

2.0 Scope

This specification applies to all product materials delivered and used for NXP former Freescale portfolio semiconductor products which are either intended to be put on the consumer market, or intended to be used by the business in semiconductor products for evaluation purposes. This specification also applies to all packaging materials delivered and used for shipping NXP products to customers. This specification does not apply to internal manufacturing hardware. In this specification providers of product or packaging materials, external final manufacturing suppliers, and die/wafer suppliers, are classified as “Supplier(s)” unless otherwise specified.

Suppliers submitting parts for NTI/NPI deliverables are required to comply with this specification.

Reporting requirements are applicable to all product and packaging materials documentation requested through the NXP Supplier Portal or directly from the ECO-Products team. Development tool hardware Suppliers shall be provided with separate reporting requirements.

The requirements in this specification are in addition to all other requirements in the material specifications, or drawings, for NXP product and packaging materials.

3.0 Roles, Responsibilities, Risks

3.1 Roles and Responsibilities

Who	What
Supplier	Responsible for monitoring all applicable environmental product or packaging content legislation/requirements and the NXP ECO-Products Substance Control for Products and Packaging; and, for submitting requested MCD, RoHS CoA, Conflict Minerals declaration, and ECO-Products Self-Assessment to the ECO-Products Team.
Global Procurement and NXP Final Manufacturing	Responsible for supporting the ECO-Products Team with collection of accurate environmental documentation from Suppliers and to ensure products, packaging, and materials, meet or exceed substance controls specification.
Product Package Engineer	Responsible for selecting and qualifying materials designed to meet ECO-Products requirements.
Sustainability Auditors	Responsible for auditing Supplier substance control compliance and for establishing corrective actions and/or communications.

Who	What
ECO-Products Analyst	Responsible for evaluating Supplier submitted MCD, RoHS CoA, Conflict Minerals declarations, and ECO-Product Self-Assessments for compliance. Responsible for evaluating regulatory changes, industry standards, customer requirements and supplier risks to define effective substance control specifications and procedures. May be contacted at ECO-Products@nxp.com.

3.2 Risks

There are no financial risks associated with the operation of this procedure.

Eco-Products Substance Control for Products and Packaging implements policies to address and reduce the risk of non-compliance, whether intentional or accidental. Non-compliance refers to regulatory requirements and customer terms and contracts of Sales. Non-compliance with this procedure can have a severe and lasting impact on NXP image resulting in a loss of business. In cases of non-compliance with product or packaging regulatory requirements, risks can be more severe including customer warranty penalties, government blocked shipments, fines, operational facility closures, and/or jail time for responsible parties.

4.0 Flowchart(s)

N/A

5.0 Procedure

5.1 Supplier Substance Requirements

NXP Prohibited substances shall not be contained at the homogeneous material level of any materials that are incorporated into NXP products or packaging at concentrations that exceed the maximum concentration value (MCV). NXP Prohibited substances are defined in Sections 6.2 and 6.5.

NXP Restricted substances shall not be contained at the homogeneous material level of any materials that are incorporated into NXP products or packaging at concentrations that exceed the maximum concentration value (MCV), unless NXP exempts the restriction in the Scope of Restriction of Section 6.3. NXP Restricted substances are defined in Sections 6.3 and 6.5.

All substances shall be reported if present and intentionally added at or above 1 ppm, or unintentionally contained above the maximum concentration value (MCV) at the homogeneous material level of any materials that are incorporated into NXP Products or packaging. NXP Declarable substances are defined in Sections 6.4 and 6.5.

5.2 Supplier Requirements for Substances Prohibited or Controlled by Regulations and Standards

NXP requires that its products and packaging materials meet, or exceed, the regulatory requirements found in EU RoHS, EU ELV, EU 94 and EU REACH, in addition to NXP MCV, and reporting thresholds, for Prohibited and Restricted substances listed in Section 6.2 and Section 6.3.

NXP encourages its suppliers to develop lead (Pb) free, and halogen free, solutions for product and packaging materials. To meet industry standards, Suppliers may be required through NXP specifications or purchase orders, to deliver lead free and halogen free product and packaging materials. Upon NXP request, Suppliers shall provide lead free and halogen free development plans and conversion roadmaps.

5.2.1 Restrictions for Lead (Pb) Content in Product Materials, Wafers, and Die

When NXP designates product materials as “Lead Free” (or “Pb-Free”) in either design specifications or purchase orders, the material may not contain intentionally added lead. Unintentional lead may not exceed the lead thresholds listed in Section 6.3. When NXP designates product materials to be “RoHS Compliant” in design specifications or purchase orders, the materials may not contain intentionally added lead unless the lead is NXP exempt.

a) Lead compounds are NXP Prohibited substances per Section 6.2. Usage exemptions shall not apply.
b) Leaded glass and leaded ceramic materials are NXP Restricted substances. Specific exemptions may apply to some product materials.
c) Metallic lead and lead alloys are NXP Restricted substances. Specific exemptions may apply to some product materials.
d) Whether present in compounds, glass, ceramic, or metals & alloys, Suppliers shall report all lead content per Section 5.3.1. Lead shall be reported separately from miscellaneous or proprietary substances. Exempted uses of lead may apply; NXP shall review and disposition Supplier lead exemption requests and notify Supplier of any rejections.

EU RoHS and ELV Directive Exemptions Recognized by NXP:

RoHS I	RoHS II	ELV II	Exemption Allowed	Scope & Dates of Applicability
6	6a 6b 6c	1a 2c 3	Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight.	Only while regulatory exemption(s) remain in effect.*
7a	7a	8e 8h	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85%, or more, lead by weight.	Only while regulatory exemption(s) remain in effect.*
7b	7b	8a 8b	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission, and network management for telecommunications.	Only based upon an NXP signed waiver for materials either not covered by RoHS (e.g. aerospace) or 'intended for vehicles type approved before 1/1/2016 and spare parts for these vehicles'.
* 5 Or 7c	7c-I	10a	Electrical and electronic components containing lead in glass or ceramic other than dielectric in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound	Only while regulatory exemption remains in effect.
7c	7c-II	10a	Lead in dielectric ceramic and capacitors for a rated voltage of 125V AC or 250V DC or higher.	Only while regulatory exemption remains in effect.
7c	7c-IV	10b	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors.	Only while regulatory exemption remains in effect.
15	15	8g	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.	Only while regulatory exemption remains in effect.
*	*	*		Exemption applicability shall be established on date of supplier submission and certification of Material Composition Declaration through the NXP Supplier Portal or via the NXP Material Declaration Form.

5.2.2 EU 94 for Packaging Materials

Per EU/94/62 EC Directive on Packaging and Packaging Waste, lead, cadmium, mercury and hexavalent chromium shall not be intentionally added to packaging material. The sum of lead, cadmium, mercury and hexavalent chromium present in each packaging material shall not exceed 100 PPM by weight for each item.

5.2.3 Restrictions for REACH Substances

Suppliers shall comply with EU REACH requirements for substance registration and reporting. This applies to all product and shipping materials.

a) Supplier shall monitor the official EU REACH Substances of Very High Concern (SVHC) Candidate List on the ECHA website: http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp.
b) Supplier shall notify NXP when a material delivered to NXP contains a candidate SVHC substance in excess of 0.1% (1000 ppm) by weight in any homogeneous material. Notifications shall meet the requirements established in REACH Regulation 1907/2006, Article 33. Upon NXP request Supplier shall provide plan for SVHC use discontinuation.
c) REACH Annex XIV substances are NXP Prohibited Substances. Suppliers may not apply Authorization obtained from ECHA for specific application of Annex XIV substances in materials without NXP approval.
d) REACH Annex XVII substances with restrictions applicable to supplied materials or to NXP products are NXP Prohibited Substances per Section 6.2.
e) REACH substances shall not be included in miscellaneous, unidentified, or proprietary substances.
f) Official REACH notifications shall be sent to the ECO-Products group at ECO-Products@nxp.com.

5.2.4 Conflict Minerals

Supplier shall comply with Section 1502 of U.S. HR 4173 (2010 Financial Reform Bill) and it's implementing regulations promulgated by the U.S, Securities and Exchange Commission (SEC). This applies to all product and packaging materials.

a) Supplier shall identify any 3T&G in the NXP MCD of the Supplier product material.
b) Supplier shall not include 3T&G in the miscellaneous, unidentified, or proprietary, substances.
c) Supplier shall make a reasonable country of origin inquiry to identify the source smelter and/or mine for all 3T&G used in its product materials.
d) Supplier shall declare a good faith Conflict Free Mineral status (DRC conflict free, not DRC conflict free or indeterminate) through the CFSI CMRT and provide NXP with smelter and/or mine information, plus documentation necessary to support SEC reporting requirements.
e) Supplier shall send 3T&G declarations, smelter and/or mine information to Conflict@nxp.com .

5.2.5 Halogen-free Materials

NXP is converting all product and packaging materials to halogen free. All NPI materials **are expected to be** halogen free in composition. To be designated as "halogen free" the material shall meet the following requirements:

a) In addition to Prohibited substances listed in Section 6.2, the material may not contain intentionally added bromine, and/or chlorine in any form or compound.
b) Any trace contaminants, of any form, bromine or chlorine shall not exceed 0.09% (900 ppm) by weight of any homogeneous material, and 0.15% (1500 ppm) combined bromine and chlorine.

5.2.6 Antimony Oxide-free Materials

NXP may designate product and packaging materials as antimony oxide free in either design specifications or purchase orders. Materials designated as "antimony oxide free" shall meet the following requirements:

a) In addition to Prohibited substances listed in Section 6.2, the material may not contain any additionally added antimony oxides compounds.
b) Any trace contaminants, of any form, of antimony oxides shall not exceed 0.09% (900 ppm) by weight of any homogeneous material, unless allowable by NXP exemption.

5.2.7 Rare Earth Elements

Rare Earth Elements (REE) are necessary for production of many semiconductor components. Seventeen elements in the Periodic Table are classified as REE, specifically, those with chemical symbols Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu. Rare Earth Elements (REE) are not Prohibited substances, but there is an ever present risk of supply disruptions for such elements. Thus NXP requires Suppliers to identify when REE are contained in product and packaging materials. Upon NXP request, Supplier shall make a good faith effort to identify the primary country of origin for their REE, and provide information about qualified alternative sources from other countries.

5.2.8 Nanomaterials

Nanomaterials are defined by 2011/696/EU to be "*natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm - 100 nm*." Upon NXP request, Supplier shall identify all nanomaterials found within product and/or packaging materials that meet the above definition.

5.2.9 Temporary Substance Waiver

NXP may, at its sole discretion, provide a temporary waiver for the continued use of an existing material that does not meet each of the substance requirements defined in sections 5.1 through 5.2.8. The purpose of this temporary waiver shall be to provide an orderly transition to a new material after confirmation that the existing material is safe to use in existing manufacturing processes, and confirmation that the material does not violate existing regulations or target customer requirements. Existing waivers do not apply to new materials or new suppliers of existing materials. Waivers shall strictly follow the Sustainability Waiver Approval Process.

5.3 Supplier Reporting Requirements

5.3.1 Material Composition Reporting (MCD) Requirements

Suppliers shall report 100% of all substances that remain in their material on the NXP Supplier Portal MCD or as requested by NXP; to include any substances intentionally added at or above 1ppm, and any unintentionally added substances above 100 ppm. This includes NXP Prohibited substances and Restricted substances listed in Sections 6.2 or 6.3. Any substances listed in Sections 6.2 or 6.3 that are not specifically listed by CAS # in Section 6.5 shall be declared if intentionally or unintentionally added.
MCD reporting shall be completed:

a) Within ten (10) business days [twenty (20) business days for eFM] after Supplier is notified of purchase order signing or the date NXP requests MCD completion, whichever is later or;
b) At least 30 days before any materials are received by NXP that have been modified, as described in Section 5.3.2 of this Specification, for which an MCD report was previously submitted.

Upon NXP request, Suppliers shall report all requested information through the NXP Supplier Portal MCD, including:

Required MCD/MDF Information	**Product Materials**	**Packaging Materials**
Supplier Information	Yes	Yes
Material information	Yes	Yes
EU RoHS Compliance	Yes	Not Applicable
EU REACH Compliance	Yes	Yes
EU 94/62/EC Directive on Packaging and Packaging Waste	Not Applicable	Yes
NXP Prohibited and Restricted substance compliance	Yes	Yes
100% of substances remaining in material after NXP processing	Yes	Yes

For certain homogeneous materials with a standard composition, NXP reserves the right not to request MCD reports for each unique part number supplied. Examples might include “bare” bond wire, or “bare” lead frames, under the following conditions:

a) The material does not contain NXP Prohibited or Restricted substances above the MCV outlined in Sections 6.2 or 6.3, and,
b) The metal type is a common industry standard. Suppliers shall be required to provide the metal type or alloy trade name (e.g. CDA 194, C7025, Alloy 42, Eftec-64), in place of an MCD.

Miscellaneous, unidentified, and proprietary substances shall not exceed a total of 10%, or 100,000 ppm, of the total substances reported within a homogeneous material in an MCD. Miscellaneous, unidentified, and proprietary substances are defined as those substances without a CAS # designation. **Prohibited and Restricted substances, as well as substances subject to NXP recognized regulatory exemption may NOT be included in the maximum of 10% miscellaneous, unidentified, and proprietary substances.**

5.3.2 Substance Reporting Format and Instructions

Suppliers shall report substances in the format requested. Suppliers shall obtain substance reporting instructions from the NXP Supplier Portal or from the ECO-Products team.

5.3.3 Material Modification

If a Supplier's material is modified in a manner which significantly impacts the composition of the material NXP shall require an updated MCD to be submitted through the NXP Supplier Portal, or to the ECO-Products team. A significant modification of a supplied material is defined as:

a) A change in the concentration of any substance previously reported in a material;
b) An addition of a substance that was not previously present or reported in a material;
c) The removal of any substance previously reported in a material.

5.4 Supplier RoHS Certificate of Analysis (RoHS CoA) Requirements

The RoHS Certificate of Analysis (RoHS CoA) is a chemical analysis reporting concentrations of RoHS Restricted Substances, additional NXP required substances, and any additional substance requested by NXP.

Suppliers shall:

a) Provide a RoHS CoA for each homogeneous material in a product material annually and/or for each homogeneous material in a packaging material upon NXP request. Reports shall be valid for 1 year from date of report issue from the laboratory.
b) RoHS CoA shall be submitted to NXP as a Portable Document Format (PDF) document.
c) RoHS CoA shall be submitted through the NXP Supplier Portal or through email delivery to the ECO-Products team at ECO-Products@nxp.com, as requested.
d) The RoHS CoA shall contain chemical analysis reporting for all RoHS Restricted Substances. New analysis shall include all substances added to the EU RoHS Annex II (DEHP, DBP, BBP, and DiBP) and analysis for halogens (bromine and chlorine). Analysis for antimony oxides, arsenic, beryllium, and flame retardants (TBBPA, and MCCP) are recommended to be included effective immediately when available and may be required upon NXP request.
e) The RoHS CoA report shall be made available to NXP within five (5) business days of request by NXP [ten (10) business days for eFM].
f) Suppliers shall be responsible for compiling and storing applicable RoHS CoA reports for a minimum of four (4) years.
g) At least one RoHS CoA shall be documented per raw or homogeneous material. Each RoHS CoA report shall correlate to the NXP materials in which the raw or homogeneous material is contained.
h) Supplier(s) that have multiple sources for the same material shall retain annual RoHS CoA reports for each alternate source.
i) Materials that are assigned to multiple NXP part numbers may reuse the same RoHS CoA to fulfil the requirement for all material part numbers.
j) Suppliers shall submit RoHS CoA reports prior to delivery of first article to NXP.
k) If a Supplier's product material is modified, as described in Section 5.3.3 of this specification, the Supplier shall perform the required chemical analysis before delivery of the first article of the product modified material to NXP; RoHS CoA for modified packaging material shall be provided to NXP upon NXP request.

Suppliers shall obtain the required reporting format and instructions from the NXP Supplier Portal or from the ECO-Products team.

5.5 Final Manufacturing Weight Reporting

For finished NXP devices, final manufacturing information and data listed in Section 6.1 shall be supplied to NXP upon request. Weight template forms for this purpose shall be provided by the ECO-Products team at ECO-Products@nxp.com.

5.6 Non-Conformance

Unless exempt per Section 5.2.1 or excluded in Sections 6.2 or 6.3, the intentional use, or the existence, of a NXP Prohibited or Restricted Substance over the maximum concentration value IN ANY HOMOGENEOUS MATERIAL within a material shall cause the material to be non-conforming and non-compliant to this specification. Non-conforming product materials shall require a NXP Material Review Board disposition and/or corrective actions according to standard procedures. Disposition could range from a temporary NXP waiver to the rejection and return of all material to Supplier.

Other circumstances may cause a material or component to be considered non-conforming.

a) If a product material is specified by NXP to be RoHS Compliant but the product material is not RoHS compliant;
b) If a product material is specified by NXP to be lead-free (Pb-free) but the product material is not lead-free (Pb-free);
c) If a product material is specified by NXP to be halogen-free but the product material is not halogen-free;
d) If a shipping material does not meet EU 94 regulatory requirements.
e) If 3T&G is identified as a metal originating in and around the conflict region of the DRC.
f) If a substance appears in multiple specifications or drawings and does not meet the most stringent of the specified concentration requirements.

A supplier shall immediately report any product content non-conformance to ECO-Products@nxp.com and copy their NXP Global Procurement contact.

5.7 NXP ECO-Products Supplier Evaluations

NXP uses Audit procedures in conjunction with this specification to monitor the quality of a Supplier's substance management systems. These procedures generally follow the IEC QC 080000 guidelines.

[Note: The following statement is for internal NXP use only.] The ECO-Products Supplier Evaluations procedure explains the internal NXP responsibilities and record management procedures. The NXP ECO-Products Supplier Self-Assessment template provides the questions and instructions for annual ECO-Products Supplier Evaluations.

5.7.1 NXP ECO-Products Supplier Self-Assessment

Suppliers shall complete and submit the ECO-Products Supplier Self-Assessment upon NXP request (typically annually).

5.7.2 NXP ECO-Products Substance Compliance Audits

Suppliers shall support NXP ECO-Products Substance Compliance Audits by reviewing audit questions and collecting relevant documentation prior to any audit. During the audit, Suppliers shall make subject matter experts available to explain documentation, identify process strengths and weaknesses. Suppliers shall complete the Audit Continuous Improvement Plan if applicable.

5.7.3 NXP Prohibited Substance Certification

Suppliers shall complete, and sign, the annually revised NXP Prohibited Substances Certification for Product and Packaging Materials.

a) The NXP Prohibited Substances Certification for Product and Packaging Materials shall be incorporated into the annual NXP ECO-Products supplier Self-Assessment and NXP ECO-Products Substance Compliance Audit template.
b) Completed NXP Prohibited Substance Certifications shall be submitted by Suppliers with the completed NXP ECO-Products Supplier Self-Assessment to the ECO-Products team at EPPAudit@nxp.com

5.8 NXP Verification of Supplier Information

NXP Supplier Quality may perform incoming analytical screening of materials to verify that the actual composition is as represented by the certifications, and MCD, submitted by Suppliers.

5.9 NXP Supplier Notification

Global Procurement shall notify Suppliers of changes to this specification by means such as the NXP Supplier Portal, NXP external website, or email.

6.0 Annexes

6.1 Supplier Weight Data Report

In addition to MCD requirements for materials as required by NXP, internal and external final manufacturing operations shall be required to provide the following additional information and data for each assembled product:

Technical Contact Name
Date
Assembly Site Identification
Package Description
NXP Package Code or Basic Type (if known)
NXP Package Kit Number or Subpackage (if known)
NXP Product Part Number or Sales Item (if known)
Die type
Die length and width
BOM Data
Weight Data – the average weight of individual assembly materials that are incorporated into a finished product.

6.2 ECO-Products Prohibited Substances

Prohibited Substances	Scope of ProhibitionApplication	Maximum Concentration Value
Amines - Specific	All materials	100 ppm
Aniline and its salts	All materials	100 ppm
Asbestos	All materials	0.1 ppm
Azo compounds - Specific	All materials	20 ppm
Benzidine compounds and salts	All materials	30 ppm
Biocides - Specific	All materials	10 ppb
Cadmium and its compounds	All materials	5 ppm
Chlorinated Hydrocarbons (CHCs) (C chain < 10 C)	All materials	0.1 ppm
Chlorinated Paraffins (C chain > 10 C)	All materials	0.1 ppm
Chlorofluorocarbons (CFCs)	All materials	0.1 ppm
Chromium VI and its compounds	All materials	100 ppm
Class I and II Ozone Depleting Substances	All materials	0.1 ppm
Cyanide compounds - Specific	All materials	0.1 ppm
Dioxins and Furans	All materials	0.1 ppm
Expanded Polystyrene	All materials	Not Used

Prohibited Substances	Scope of ProhibitionApplication	Maximum Concentration Value
Glycol Ethers and Acetates - Specific	All materials	1 ppm
Halogenated Benzenes	All materials	10 ppm
Halogenated Compounds - Specific	All materials	100 ppm
Halogenated Dioxins and Furans	All materials	1 ppb
Halogenated Diphenyl Methanes	All materials	0.1 ppm
Halons	All materials	0.1 ppm
Hydrobromofluorocarbons (HBFCs)	All materials	0.1 ppm
Hydrochlorofluorocarbons (HCFCs)	All materials	0.1 ppm
Hydrofluorocarbons (HFCs)	All materials	0.1 ppm
Illegally sourced wood and wild plant material & Endangered Flora and Fauna	All materials	Not Used
Inorganic compounds - Specific	All materials	100 ppm
Isocyanates - Specific	All materials	100 ppm
Lead and its compounds	Non-metallic materials Except: Lead applications exempt by EU Directive 2011/65/EU (RoHS), or EU Directive 2000/53/EC (ELV), and their amendments	20 ppm
Mercury and its compounds	All materials	2 ppm
Nitride separating substances	All materials	100 ppm
Nitrosamines - Specific	All materials	0.1 ppm
Non-Halogenated Organic Compounds - Specific	All materials	0.1 ppm
Nonyl Phenols (NPs) & Octyl Phenols (OPs) and their ethoxylates (NPEs & OPEs)	All materials	0.1 ppm
Organic Tin compounds - Specific	All materials	0.1 ppm
Pentachlorophenol salts, esters and compounds	All materials	5 ppm
Perchlorates	All materials	6 ppb
Perfluorocarbon compounds (PFCs)	All materials	1 ppm
PFOS/PFAS and its precursors/derivatives	All materials	10 ppm
Phenols - Specific	All materials	10 ppm
Phosphorus compounds - Specific	All materials	100 ppm
Phthalates - Specific	All materials	100 ppm

Prohibited Substances	Scope of ProhibitionApplication	Maximum Concentration Value
PolyBrominated Biphenyls (PBBs)	All materials	10 ppm
PolyBrominated DiphenylEthers (PBDEs)	All materials	10 ppm
PolyBrominated Terphenyls (PBTs)	All materials	0.1 ppm
PolyChlorinated Biphenyls (PCBs)	All materials	0.1 ppm
PolyChlorinated DiphenylEthers (PCDEs)	All materials	0.1 ppm
PolyChlorinated Naphthalenes (PCN)	All materials	0.1 ppm
PolyChlorinated Terphenyls (PCT)	All materials	0.1 ppm
Radioactive Substances	All materials	Background Radiation[1]
Selenium and its compounds	All materials	100 ppm
Tar Oils and Creosotes	All materials	5 ppm
Uncategorized prohibited substances	All materials	1000 ppm
1.Background radiation is defined as 0.2uSv/hr and/or 50Bq/g maximum measured at 10 cm distance		

6.3 ECO-Products Restricted Substances

Restricted Substances	Scope of Restriction Application	Maximum Concentration Value
Aldehydes	Wood Packaging Materials	0.05ppm
Antimony Oxides	Antimony Oxide Free Materials	900 ppm
	Glass Diodes	1500 ppm
Arsenic and its compounds	Product Materials Except: Arsenic used as dopant in die, GaAs die, and copper foil bonding in PCBs	25 ppm
	Packaging Materials	10 ppm
Beryllium and its compounds	All materials Except: Oxides in ceramic and as gold wire dopant	1000 ppm
Bisphenol A (CAS # 80-05-7)	All new materials	10 ppm
Cobalt and its compounds	All applications in direct and prolonged skin contact. Printed Circuit Boards (PCBs) laminates.	100 ppm
Cyanide compounds	Packaging Materials	10 ppm
Halogenated compounds	Halogen Free Materials	900 ppm
Lead and its compounds	All metallic materials Except: Lead applications exempt by EU Directive 2011/65/EU (RoHS), or EU Directive 2000/53/EC (ELV), and their amendments	100 ppm
Methylhexahydrophthalic anhydride (CAS # 25550-51-0)	All New Materials	1000 ppm
Natural Rubber (Latex)	All materials Except: Photodiodes	100 ppm
Nickel and its compounds	All applications in direct and prolonged skin contact. Printed Circuit Boards (PCBs). For nickel in surface preparations of products intented to come into direct and prolonged contact with the skin: Nickel ion release rate < 0.28 µg/cm2/week using test method EN1811:2011.	100 ppm

Restricted Substances	Scope of Restriction Application	Maximum Concentration Value
Polycyclic aromatic hydrocarbons (PAH; PCAH) - Specific	All Materials Except: Naturally occuring impurities of less than 100 ppm	0.1 ppm
PVC and vinyl chloride monomer	Product Materials	1 ppm
Small Mineral and Ceramic Fibers	All Materials Except: Glass Re-inforced Plastics (GRP's) in Printed Circuit Boards and Die Encapsulations.	0.1 ppm
Substances that may cause skin sensitization	Printed Circuit Boards laminates Packaging Materials - All applications in direct and prolonged skin contact Except: Rosin (Colophony)	1000 ppm

6.4 ECO-Products Declarable Substances

Declarable Substances	Scope of Declarable Application	Reporting Concentration Value
Acrylates	All materials	100 ppm
Acrylonitrile compounds	All materials	100 ppm
Aldehydes	Product materials	100 ppm
Aliphatic Amines	All materials	100 ppm
Aluminum and its compounds	All materials	100 ppm
Anhydrides	All materials	100 ppm
Antimony and its compounds	All materials	100 ppm
Aromatic amines and their salts	All materials	100 ppm
Aromatic hydrocarbon compounds	All materials	100 ppm
Azo compounds	All materials	100 ppm
Barium and its compounds	All materials	100 ppm
Bismuth and its compounds	All materials	100 ppm
Boron and its compounds	All materials	100 ppm
Brominated Flame Retardants (excluding banned groups)	All materials	100 ppm
Calcium and its compounds	All materials	100 ppm

Declarable Substances	Scope of Declarable Application	Reporting Concentration Value
Chromium and Chromium III compounds	All materials	100 ppm
Clay	All materials	100 ppm
Copper and its compounds	All materials	100 ppm
Cyanide compounds	Product materials	100 ppm
Epoxy Resins	All materials	100 ppm
Ferrosilion and its compounds	All materials	100 ppm
Germanium and its compounds	All materials	100 ppm
Glycidyl ethers	All materials	100 ppm
Gold and its compounds	All materials	100 ppm
Guanidine compounds	All materials	100 ppm
Halogenated Inorganic Compounds	All materials	100 ppm
Halogenated Organic Compounds	All materials	100 ppm
Imidazole compounds	All materials	100 ppm
Indium and its compounds	All materials	100 ppm
Inorganic compounds	All materials	100 ppm
Inorganic Silicon compounds	All materials	100 ppm
Iron and its compounds	All materials	100 ppm
Isocyanates	All materials	100 ppm
Isothiazolinones	All materials	100 ppm
Magnesium and its compounds	All materials	100 ppm
Manganese and its compounds	All materials	100 ppm
Molybdenum and its compounds	All materials	100 ppm
Nanomaterials	All materials	100 ppm
Nitrates and Nitrites	All materials	100 ppm
Nitrosamines	All materials	100 ppm
Organic compounds	All materials	100 ppm
Organic Phosphorus compounds	All materials	100 ppm
Organic Silicon compounds	All materials	100 ppm
Organic Tin	All materials	100 ppm
Palladium and its compounds	All materials	100 ppm
Phenols and Phenolic Resins	All materials	100 ppm
Phosphorus compounds	All materials	100 ppm
Phthalates	All materials	100 ppm
Platinum and its compounds	All materials	100 ppm

Declarable Substances	Scope of Declarable Application	Reporting Concentration Value
Polymers	All materials	100 ppm
PVC and vinyl chloride monomer	Packaging Materials	100 ppm
Rare Earth Metals and its compounds	All materials	100 ppm
Rosins	All materials	100 ppm
Ruthenium and its compounds	All materials	100 ppm
Silver and its compounds	All materials	100 ppm
Strontium and its compounds	All materials	100 ppm
Tantalum and its compounds	All materials	100 ppm
Tellurium and its compounds	All materials	100 ppm
Thallium and its compounds	All materials	100 ppm
Tin and its compounds	All materials	100 ppm
Titanium and its compounds	All materials	100 ppm
Tungsten and its compounds	All materials	100 ppm
Vanadium and its compounds	All materials	100 ppm
Zinc and its compounds	All materials	100 ppm
Zirconium and its compounds	All materials	100 ppm

6.5 ECO-Products Substances by CAS

ECO-Products Substances

7.0 Document Information

7.1 Records

The following list identifies the records generated by the process described in this specification.

Record Type	Physical Location of Record	Responsible Role
Supplier MCD	Supplier Portal and/or ENOVIA	Global Procurement
Supplier RoHS CoA	Supplier Portal and/or SharePoint	Global Procurement
NXP Prohibited Substances Certification	ECO-Products File Server	ECO-Products
ECO-Products Supplier Self Assessment	ECO-Products File Server	ECO-Products
ECO-Products Supplier Audit Assessment	ECO-Products File Server	ECO-Products
NXP Product MCD	SAP-EHS and/or ENOVIA	ECO-Products
NXP Product RoHS CoA	SAP-EHS and/or SharePoint	ECO-Products
Conflict Mineral Declaration	Canary Database	ECO-Products
Conflict Mineral Smelter or Mine List	Canary Database	ECO-Products

7.2 References

N/A

7.3 Terms/Acronyms and Definitions

Acronym / Terms	Definition
AC	Alternating Current
Prohibited Substances	Substances that NXP Prohibits in from use in product or packaging materials in recognition of the fact that at least one Government or customer prohibit the use of the substance.
BBP	Butyl benzyl phthalate (CAS # 85-68-7)
CAS Number	Also known as CAS # or CAS Registry Number. These are unique numerical identifiers assigned by the American Chemical Abstract Service to chemicals and elements described in open scientific literature.
CoA	Certificate of Analysis
Conflict Minerals	Tin, tantalum, tungsten and gold (3T&G) that originate from conflict mines or smelters in and/or around the Democratic Republic of the Congo (DRC)
DBP	Dibutyl phthalate (CAS # 84-74-2)
DC	Direct Current
DEHP	Bis (2-ethylhexyl) phthalate (CAS # 117-81-7)
DiBP	Diisobutyl phthalate (CAS # 84-69-5)
Dopant	A substance deliberately introduced in very low concentrations to bring about desirable effects on the structure of materials.

Acronym / Terms	Definition
ECO-Products Substances	Substances that are environmentally harmful create special disposal concerns or may be valuable for reclamation purposes. Eco-Products Substances include Prohibited, Restricted and Declarable Substances known to the NXP ECO-Products group.
eFM	External Final Manufacturing
ECO-Products	Environmental Compliance Office - Products
EU	European Union
EU 94	EU 94/62/EC Directive on Packaging and Packaging Waste
EU ELV	European Union Directive 2000/53/EC, End-of Life Vehicles
EU REACH Regulation	European Union REACH Regulation 1907/2006, Registration, Evaluation, Authorization and Restriction of Chemicals
EU RoHS Directive	European Union Directive 2011/65/EU, Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (Recast)
Halogen Free	Assembly materials that do not contain chlorine or bromine, or their compounds, in excess of 0.09% (900 ppm) by weight in any homogeneous material
Homogeneous Material	A material of uniform composition throughout that may not be mechanically disjointed into different materials, such as individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins or coatings. For example, a plated lead frame has at least two homogeneous materials, the lead frame alloy and at least one plating material.
Intentionally Added	Deliberate utilization of a substance in the formulation of an assembly material where its continued presence is desired in the final product to provide a specific characteristic, appearance, or quality, except as a dopant in concentrations below the MCV.
IPC	Institute of Interconnecting and Packaging Electronic Circuits
Lead Compounds	Chemical substances that contain lead combined with other non-metallic elements, such as lead oxide or tetraethyl lead.
Material	Product materials and/or Packaging materials
Material Composition Declaration	A document that provides detailed chemical composition data for a product or raw material.
Maximum Concentration Value	The maximum weight/weight concentration allowed for each substance per homogeneous material.
MCCP	Medium chain chlorinated paraffins
MCD	Material Composition Declaration
Mechanically Disjointed	Separation, in principle, by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.
Metallic lead and lead alloys	Chemical substances that contain only elemental lead or lead alloyed only with other metallic elements or carbon.
NPI	New Product Introduction
NTI	New Technology Introduction

Acronym / Terms	Definition
Packaging material(s)	All materials of any nature to be used for the containment, protection, handling, delivery and presentation of products from the producer to the user or the consumer. Packaging can be categorized but is not limited to primary, secondary and tertiary packaging.
Pb	Lead
PDF	Portable Document Format
Primary packaging	Packaging that contains the item as sold and is the last to be discarded by the consumer.
PPB	Parts Per Billion. Measurement of concentration expressed as units contained per 1000 million units of total.
PPM	Parts Per Million. Measuirement of concentration expressed as units contained per million units of total.
Product material(s)	All materials and components, foundry die, and wafers that are incorporated into NXP devices. These are often referred to as a piece part or assembly material. Also refers to all supplied fully assembled devices.
Raw Material	Materials the assembly material supplier receives from its suppliers and uses to make the assembly material supplied to NXP.
REACH	Registration, Evaluation, Authorization & Restriction of Chemicals
REE	Rare Earth Elements
Reportable Concentration Value	The minimum weight/weight concentration above which a restricted exempt or declarable substance shall be reported.
Declarable Substances	Substances that may have environmental significance and may be contained in electronic products.
Restricted Substances	Substances that are not currently prohibited in all applications.
RoHS	Restriction of Hazardous Substances
SEC	Securities and Exchange Commission
Secondary Packaging	Packaging that encloses the primary packaging. May alse be referred to as grouped sales packaging.
Supplier(s)	Providers of product materials, finished die and wafers that are incorporated into NXP products in internal or external final manufacturing operations and/or providers of packaging materials that are used for the containment, protection, handling, delivery and presentation of products.
SVHC	Substance of Very High Concern
TBBPA	Tetrabromobisphenol A
Tertiary Packaging	Packaging used for bulk handling, warehouse storage and transport shipping. Not typically seen by the consumer.
U.S. HR 4173	United States House of Representatives regulation 4173, called the 2010 Financial Reform Bill Dodd-Frank Wall Street Reform and Consumer Protection Act
V	Voltage
Weight/weight	Expressing a concentration as the ratio of the weight of a constituent compared to the weight of the whole.

7.4 Approval List

Names of the approvers:
Robin Davidson
Nora Marroquin
Eric-Paul Schat
Griffin Teggeman

7.5 Revision History

Document Author	Date	Description of Change	Document Owner
Robin Davidson	7/11/2016	Initial Release	Griffin Teggeman
In case of questions or change proposals please contact the latest document author and owner.			