



**Mattel Requirements for Certified Suppliers on site audit  
(Pigment/Master batch)**

Updated Sep 2019

QOMP: Global Quality Manufacturing Policies

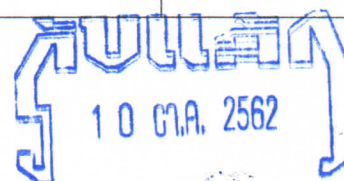
QSOP: Quality Safety Operating Procedures

RMS: Raw Material Specifications

<u>Current Procedure</u>		<u>Title</u>	<u>Current Revision</u>	<u>Attachment</u>	<u>Relate Document</u>
QOMP	2115	Supplier Approval Process	5.00	 GQMP 2115 Rev. 5.00.pdf	
QSOP	3610	Plasticizer	6.00	 QSOP 3610 Rev.6.00.pdf	
QSOP	3600	Heavy Element	8.00	 QSOP 3600 Rev. 8.00.pdf	
QSOP	3614	Flame Retardants	5.00	 QSOP 3614 5.00 .pdf	
QSOP	3621	Restricted Substances	12.00	 QSOP_3621 Rev.12.pdf	
QSOP	5020	Environmental – Substances that Deplete the Ozone Layer	2.00	 QSOP 5020 2.00 .pdf	
QSOP	3622	Residual Monomers	2.00	 QSOP 3622 2.00 .pdf	

Received date 10 / 10 / 2019

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**ORIGINAL**



**CPI** CORPORATE  
PRODUCT INTEGRITY


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GQMP: Global Quality Manufacturing Policies

QSOP: Quality Safety Operating Procedures


RMS: Raw Material Specifications

<u>Current Procedure</u>		<u>Title</u>	<u>Current Revision</u>	<u>Attachment</u>	<u>Relate Document</u>
RMS	2903	Colorants	2.00	 RMS 2903 Rev. 2.00.pdf	

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By 

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	TITLE			
	2115 Supplier Approval Process			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	2115	5.00	2018-10-16	Raymundo Martinez
<b>GLOBAL QUALITY MANUFACTURING POLICY</b> <b>Mattel – Confidential Information</b>				<b>FOR QUESTIONS CONTACT</b> Raymundo Martinez

## 1 - SCOPE (2115)

### 1.1 - Products and Components Covered

#### 1.1.1 - All Suppliers, including **Brokers**

### 1.2 - Exemptions

#### 1.2.1 - Suppliers that only provide: **Non-Production Materials**, Auxiliary Equipment and/or Tools.

### 1.3 - Definitions (Words that are defined are *italicized and bolded* once per section)

**1.3.1 - Batch:** A quantity of homogeneous material that has been produced in a single continuous operation under a defined set of conditions.

**1.3.2 - Broker:** Also known as distributor, brokers are agents who function as an intermediary between two or more parties (in this case: Buyer and OEM) in the purchase of goods, in return for a commission. There are 2 types of brokers:

- **Contacting Brokers:** Brokers that come into contact with materials/components purchased from a manufacturer for purposes of repackaging. Examples include, but are not limited to: a) Solvent Broker that purchases a large container of solvent to distribute into smaller bottles, b) Screw Brokers that purchase large amounts of screws to pack them as requested by their customer (e.g., Broker purchases 10K screws from OEM and packages them into 10 pcs. screw bags), etc.
- **Non Contacting Brokers:** Brokers that do not perform any of the activities of contacting brokers, these types of brokers only buy and sell the materials purchased directly from the manufacturer (e.g., ULINE).

**1.3.3 - Certified Supplier:** A supplier who has been approved by Mattel per [GQMP 2115](#), [Supplier Approval Process](#), and designated a classification such as Certified Class A, Certified Class B, Certified Class C.

**1.3.4 - Large and Recognized Company:** A supplier that has been recognized by Mattel and by the industry for their high quality materials and a worldwide reputation as a leading supplier (e.g., BASF, Texas Instruments, etc.).

**1.3.5 - Critical Defect:** A defect that results in a ***hazardous condition*** or non-compliance with a governmental, voluntary or Mattel safety standard.

**Major Defect:** Any defect that:

1. causes the consumer to reject the product at the point of purchase.
2. causes the consumer to deem the product, at the point of use, unfit for its intended use due to a severe functional or aesthetic defect and likely resulting in the consumer returning all or a portion of the product.
3. is severe enough to result in the customer (retailer) returning the product or imposing a fine.
4. is classified as major by the product specification/requirements

**Minor Defect:** Any defect that:

1. that the consumer is likely to notice and which would result in a negative image of the product or Mattel products in general, however not resulting in pick-over at the point of purchase or returning the product.
2. the customer (retailer) may observe and results in a negative image of Mattel, but would not be returned or result in a fine.
3. Any defect classified as minor by the product specification/requirements.

**1.3.6 - Commodity-Subcommodity:** Categorization defined by raw material or component type. Examples: 1) Commodity M - Subcommodity B → Paint; 2) Commodity M - Subcommodity Z1 → Powder Coating.

**1.3.7 - Material Type:** The classification of a group of materials taking into account properties such as: chemical composition, formulation, manufacturing process, etc.

**1.3.8 - Non Certified Supplier:** A supplier who has been classified as a Non Certified source with reference in [GQMP 2115](#), [Supplier Approval Process](#).

**1.3.9 - Non-Production Materials:** Materials not intended for production, non-product related items (e.g., paints for floors, walls, ceilings, machinery, etc.).

**1.3.10 - Open Market:** Materials or components sourced from an unknown manufacturing process and quality system. Open market is also known as open source.

**1.3.11 - Substrate:** The base material of an item, regardless of whether or not it has a surface coating. Labels and electroplating are both considered substrate materials.

**1.3.12 - Subcontractor:** A third party that adds a process step(s) using Mattel provided raw materials, Mattel owned tooling or Mattel provided semi-finished goods in the manufacture of products for Mattel. Examples of subcontracting activities include but are not limited to the following

1. A manufacturer using tooling owned by Mattel primarily to perform a specific process (i.e., injection molding, blow molding, rotocasting and extrusion) because the garactor has the expertise and equipment to provide the service or support production during peak season.
2. Material or semi-finished component(s) provided to a manufacturer to perform specific tasks to a Mattel component (e.g., sewing processes, surface coating decoration, etc.).

**1.3.13 - Surface Coating:** All layers of materials such as paint or similar materials, that dry to a solid film when applied to a substrate and that can be scraped off with a sharp blade or washed off with a solvent such as acetone or ethanol, without removing the substrate (base) material. These are factory applied coatings on products.

**1.3.14 - Test Report:** A document issued by a Mattel-approved testing laboratory containing quantitative results. All test reports must be signed and dated by the test technician who conducted the test, as well as the lab manager or appropriate lab management personnel.

## 2 - PERFORMANCE REQUIREMENTS

**2.1 - Contacting Brokers** shall be treated as suppliers for the purpose of classification per this GQMP.

**2.1.1 - Non-Contacting Brokers** shall follow requirements referenced in §2.10.7 The Manufacturer providing the materials to the non-contacting broker shall be classified per this GQMP (e.g., if the materials are sourced from Open Market, the non-contacting broker shall be treated as an Open Market Supplier).

**2.2** - Suppliers of PVC injection molding resins shall be certified by means of an on-site Audit (reference §2.7).

### 2.3 - Sourcing of Materials

**2.3.1 - Raw Surface Coatings**, including other materials to be used in or with raw surface coating materials (e.g. thinner, primer, etc.); shall only be purchased from **Certified Suppliers** who have obtained certification by means of an On-site Audit or who are **Large & Recognized**.

**2.3.1.1** - Examples of raw surface coating suppliers include, but are not limited to:

- paint
- Ink
- powder coating
- lacquer (varnish)
- dyes for VUM

**2.3.1.1.1** - Exemption

**2.3.1.1.1.1** - Printing inks (used in processes such as: Digital Inkjet Printing, **off set printing**, etc), fabric fluorescent ink, ink for sewn-in-label printing, paint/ink applied to polyurethane substrate, powder used for AB coating processes, Supplier "Pilot Ink" and Glass type pigments.

**2.3.1.1.2** - Suppliers of materials or components (e.g., co-pack items such as DVD's) assigned by a licensor.

**2.3.2** - PVC compound may only be purchased from the following suppliers:

- a) Wofoo Plastics Limited
- b) Kwong Yu Plastic FTY Ltd.

**2.3.3** - MGPA Managed Suppliers

**2.3.3.1** - Asia Manufacturing Facility: Sourcing of materials and components from a non certified supplier is not allowed if an adequate category is available (i.e., if an "X" plant is sourcing materials "XYZ" from a non-certified supplier, but there is a supplier which has been approved by MGPA for material XYZ; the plant is required to use this approved source.), with the exemption of §2.3.4) or if an approval has been granted per [GQMP 2002](#), Product and Process Deviations.

**2.3.3.2** - On-hand inventory and forthcoming deliveries from purchase orders released prior MGPA notification related to a supplier disqualification can be used (Deviation is not required). Plant Quality Head of department must put in place a containment plan for the disposition of the materials.

**2.3.3.3** - Inaccessible electronic materials/components of products that are not contained within an accessible small part as well as all materials used in battery chargers intended for adult use only are not required to be purchased from a Certified supplier.

**2.3.3.3.1** - Plant Quality head of department shall develop their own incoming test plan and shall segregate materials as necessary.

**2.3.4 - Vendor** must add 'For Mattel Product' when placing a purchase order (P.O.) from a Mattel certified supplier.

**2.4** - Suppliers of materials covered in §2.3.1.1 must maintain a no lead policy in their manufacturing and warehousing facilities. This no lead policy requires that product or raw material containing lead in excess of [RMS 2901](#), Raw Surface Coating Materials, must not be manufactured by, stored in, or shipped from that supplier.

**2.5** - If a supplier engages in subcontracting, the **Subcontractor** must be certified by Mattel per [GQMP 2120](#), Subcontractors - Mattel Owned and Operated Plants.

**2.5.1** - Any supplier that subcontracts without notifying Mattel must be immediately disqualified and subject to the requirements of §2.11.

**2.5.2** - Suppliers of materials covered in §2.3.1.1 must not engage in subcontracting unless the subcontractor has been certified by Mattel per §2.10. Any supplier that subcontracts without prior approval from Mattel shall be immediately disqualified per §2.11 and will not be re-certified.

**2.6 - Declaration of Compliance (DoC)**

**2.6.1** - All Supplier shall sign a Declaration of Compliance (reference §6.4), which shall be renewed on a yearly



basis (plus one month).

**2.6.1.1** - A DoC is not required from **Non-contacting brokers**, **Open Market** or by **Non Certified Suppliers** is approval is granted by the applicable Regional Head of Quality through the Source Evaluation Report (reference §6.3).

**2.6.1.2** - DOCs provided by Certified Suppliers Class A may extend their renewal to two years plus one month.

**2.6.2** - DoC shall reference all protocols (as deemed appropriate by the certifying team) applicable to the material(s) that are to be sourced from the supplier. DoC template shall be updated to add or remove referenced protocols as needed.

**2.6.3** - DOC in supplier's format (forms provided by Supplier) may be accepted.

**2.7** - Suppliers shall comply with [GQMP 2252](#), Bill of Substance. Exemption: Non-contacting brokers, as compliance is required by the material manufacturer.

## **2.8 - On-site Audit Responsibility**

**2.8.1** - An on-site audit per §2.9 shall be conducted by an individual from Mattel Quality or Procurement (For MGPA Certified Suppliers, the team shall consist of one person from Supplier Quality or Mattel Global Procurement Asia [MGPA]. result should be concurred by both Supplier Quality and MGPA).

**2.8.1.1** - On site audit may be conducted by a representative of a 3<sup>rd</sup> party agency, provided the agency is accredited to the requirements of ISO/IEC 17021 by an accreditation organization that conforms to ISO/IEC 17011 and is a signatory to the International Accreditation Forum (IAF) Mutual Recognition Agreement for the accreditation of management systems registrars.

## **2.9 - On-site Audit Requirements**

### **2.9.1 - Audit Results (score)**

**2.9.1.1** - Suppliers shall be audited, as applicable with reference in §6.1 or §6.2 and shall comply with the following:

**2.9.1.1.1** - Obtain an overall score ≥75% (overall score ≥85% for Raw SC suppliers)

**2.9.1.1.2** - Obtain a compliance score=3 on all requirements identified with a diamond icon (◆) and a delta icon (▲)

**2.9.1.1.3** - Each individual section on the audit checklist must meet a minimum score of 50%

### **2.9.2 - Corrective / Preventive Actions**

**2.9.2.1** - The Supplier must contact the Audit Team Leader within 10 business days from the date the Audit and Checklist Report (as applicable, reference §6.1 or §6.2) is signed by the supplier representative with a corrective action plan and date for re-assessment for all items that require additional action.

**2.9.2.1.1** - Corrective Action related to any clause identified with a (▲) Delta icon shall be completed within 45 days from the date the audit is concluded.

**2.9.2.1.2** - Corrective Action related to any clause identified with a (?) diamond icon shall be completed within 90 days from the date the audit is concluded.

**2.9.2.1.3** - Audit Results and CAPA shall be approved by the Quality HOD and Procurement HOD (Head of Supplier Quality for MGPA certified suppliers) or their designee, by means of Audit and Checklist Report (as applicable, reference §6.1 or §6.2).

## **2.10 - Supplier Classification Requirements**

**2.10.1** - All **Certified Suppliers** shall have a Batch Identification system, supplier certification shall as appropriate

be managed at the **Commodity or sub-Commodity** level.

## 2.10.2 - Certified Suppliers Class A

**2.10.2.1** - To become a certified supplier class A, the supplier shall either:

### 2.10.2.1.1 - Option 1:

- Comply with the Audit Requirements per §2.9 with an overall score  $\geq 90\%$  in the 2 most recent audits. Score shall be obtained during the audit process, adjusted scores as a result of a CAPA process may not be used to satisfy this requirement
- Have "No" chemical failures (reference [GQMP 2108](#), [RCA/CA Tracking](#)) attributable to the supplier within a 24 month time frame.
- A minimum of 20 consecutive deliveries in the 24 months time frame
- Have documented and appropriately implemented a CAPA(s) plan for all **Major/Minor defects** attributable to the supplier.
- Approval is granted by Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality for MGPA certified suppliers)\* or their designee, by means of the Audit checklist And Report (§6.1 or §6.2).

*Note: Information from MGPA and other Mattel O&O Plants shall be collected in order to meet this status*

**2.10.2.1.2** - Re-certification of Class A (Option 1) supplier may be extended to every 24 months plus one month. Plant QHOD (Head of Supplier Quality for MGPA certified suppliers) may define any special conditions for these type of classifications (e.g., Intermediate audits with a reduced audit scope, etc.).

**2.10.2.1.2.1** - If a failure is reported and the date of the last audit was > 12 months, the supplier shall be audited within the next 30 days. The Quality HOD (Head of Supplier Quality for MGPA certified supplier) for each location shall develop an interim control plan until the supplier can be re-certified. Failure to re-certify within the 30 day time period, shall result in an immediate reclassification as non-certified.

### 2.10.2.1.3 - Option 2 (**Large and Recognized** only):

- Complete a Source Evaluation Report (reference §6.3)
- Have "No" chemical failures (reference [GQMP 2108](#), [RCA/CA Tracking](#)) attributable to the supplier within a 24 month time frame.
- A minimum of 20 consecutive deliveries in the 24 months time frame.
- Approval by means of a Source Evaluation Report (§6.3) shall be granted as follow:  
L1: Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality and Asia Head of Procurement for MGPA certified suppliers)\* or their designee.  
L2: Applicable Regional Head of Quality.

*Note 1: Information from MGPA and other Mattel O&O Plants shall be collected in order to meet this status*

*Note 2: Raw Surface Coating Commodities may not be certified under option 2.*

## 2.10.3 - Certified Supplier Class B

**2.10.3.1** - To become a certified supplier class B, the supplier shall either:

### 2.10.3.1.1 - Option 1, supplier shall:

- Comply with the Audit Requirements per §2.9
- Have "No" chemical failures (reference [GQMP 2108](#), [RCA/CA Tracking](#)) attributable to the supplier within a 18 month time frame.
- A minimum of 9 consecutive deliveries in the 18 months time frame.
- Approval is granted by Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality and Asia

Head of Procurement for MGPA certified suppliers)\* or their designee, by means of the Audit checklist And Report (§6.1 or §6.2).

*Note: Information from MGPA and other Mattel O&O Plants shall be collected in order to meet this high-performing status*

**2.10.3.1.2 - Option 2 (Large and Recognized only)**, supplier shall:

- Complete a Source Evaluation Report (reference §6.3).
- Have "No" chemical failures (reference [GQMP 2108](#), [RCA/CA Tracking](#)) attributable to the supplier within a 18 month time frame.
- A minimum of 9 consecutive deliveries in the 18 months time frame.
- Approval by means of a Source Evaluation Report (§6.3) shall be granted as follow:  
L1: Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality and Asia Head of Procurement for MGPA certified suppliers)\* or their designee.  
L2: Applicable Regional Head of Quality

#### **2.10.4 - Certified Supplier Class C**

**2.10.4.1** - To become a certified supplier class C, the supplier shall either:

**2.10.4.1.1 - Option 1**, supplier shall:

- Comply with the Audit Requirements per §2.9.
- Approval is granted by Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality for MGPA certified suppliers)\* or their designee, by means of the Audit checklist And Report (§6.1 or §6.2)

**2.10.4.1.2 - Option 2 ("Large and Recognized" only)**, supplier shall:

- Complete a Source Evaluation Report (reference §6.3)
- Approval by means of a Source Evaluation Report (§6.3) shall be granted as follow:  
L1: Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality and Asia Head of Procurement for MGPA certified suppliers)\* or their designee.  
L2: Applicable Regional Head of Quality

**2.10.4.1.3 - Option 3**, supplier shall:

- Complete a Source Evaluation Report (reference §6.3)
- Have "No" chemical failures (reference [GQMP 2108](#), [RCA/CA Tracking](#)) attributable to the supplier within a 18 month time frame.
- A minimum of 9 consecutive deliveries in the 18 months time frame.
- Approval by means of a Source Evaluation Report (§6.3) shall be granted as follow:  
L1: Plant Quality HOD & Plant Procurement HOD (Head of Supplier Quality and Asia Head of Procurement for MGPA certified suppliers)\* or their designee.  
L2: Applicable Regional Head of Quality

#### **2.10.5 - Non-Certified Suppliers**

**2.10.5.1** - Approval to use a non-certified supplier shall be granted by the following:

Level 1: Quality and Procurement HOD (Head of Supplier Quality for MGPA Non-Certified Supplier).

Level 2: Asia Regional Head and Asia Head of Procurement

Note: Level 2 approval is only required for MGPA Non-Certified Suppliers

**2.10.5.2** - A Source Evaluation Report (reference §6.3) shall be completed with the following minimum information:



- List of material to be sourced from the supplier
- Company background information

**2.10.5.3** - Reference the [MGPA Non-Certified Supplier Approval Process](#) for guidance, when requesting approval for a Non-Certified supplier through Supplier Quality team.

## **2.10.6 - Open Market**

**2.10.6.1** - Material sourcing from Open market is not allowed, unless written approval is granted by the following individuals:

- Global Head of Quality
- Global Head of Procurement

**2.10.6.1.1** - Documentation of approval shall be kept for records including a proposed control plan (reference §6.5).

**2.10.6.2** - Approval shall be renewed every 12 months plus 1 month.

## **2.10.7 - Non-Contacting Brokers**

**2.10.7.1** - These types of suppliers shall inherit the same status (e.g., Class A Certified, Non-Certified, etc.) as the manufacturer of the materials/components that they are providing. For example, Broker A provides a surface coating material to Mattel. The manufacturer of that surface coating is decided by the auditing team to be categorized as a Certified Supplier Class A. Broker A shall also be categorized as a certified supplier Class A.

**2.10.7.1.1** - The broker shall provide a disclosure letter stating that they do not contact or add value (e.g., alternate, transform, adds a process step(s), etc.) to the materials/components sourced from the manufacturer.

## **2.11 - Supplier Disqualification**

**2.11.1** - Suppliers are disqualified for failure of their material to comply with Mattel safety and regulatory requirements unless there is a root cause analysis and corrective action plan to prevent this issue from happening again.

**2.11.1.1** - If continued use of the supplier is desired, an approval shall be granted per [GQMP 2002](#), Product and Process Deviations. Included in the deviation request shall be a proposed probationary period with testing requirements more stringent than applicable GQMP's, as well as the supplier failure history. The details of the deviation shall be agreed upon by all applicable locations. If a common agreement cannot be reached, then separate deviations may be submitted.

**2.11.1.1.1** - For suppliers of materials covered in §2.3.1.1 the probationary period shall consist of testing every container at incoming receiving inspection per the following, as applicable:

- [RMS 2901](#), Raw Surface Coating Materials
- [QSOP 3610](#), Plasticizers
- [QSOP 3612](#), Plasticizers - Children's Products and General Consumer Products

**2.11.1.1.2** - If the source is determined to be disqualified:

**2.11.1.1.2.1** - Suppliers may re-apply one time only for certified status no sooner than one year from the date of their disqualification. Provisional certification may not be granted.

**2.11.1.1.2.1.1** - Meanwhile, material may continue to be received from these suppliers as a non-certified supplier.

**2.11.1.1.2.1.2** - If a supplier becomes disqualified at one Mattel manufacturing operation, that supplier is automatically disqualified at all Mattel manufacturing operations, including Vendors.

**2.11.1.1.2.1.3** - The Supplier Audit Report must be stamped with a “Disqualified” stamp and the date of disqualification must be recorded.

**2.11.1.1.2.1.4** - For in-process or open orders from a disqualified supplier, the plant must have a materials control and containment plan to ensure materials are properly segregated.

**2.11.1.1.2.1.5** - For suppliers of materials covered in §2.3.1.1 that has been disqualified, in-process or open orders from a supplier that has been disqualified must be evaluated by testing every container at incoming receiving inspection. If a single container fails the test, the entire batch must be rejected. No further orders may be placed with this supplier.

**2.11.1.1.3** - Any source whose supplier is disqualified must notify to the following individuals:

- Global Head of Quality
- Regional Head of Quality
- Head of Supplier Quality
- Quality and Procurement HOD's at Mattel Plants (as applicable)
- Vice President, Mattel Global Procurement Asia

## **2.12 - Supplier Re-Certification**

**2.12.1** - All Suppliers shall be re-certified within one year of original certification plus one month. Exception: Class A supplier, re-certification may be extended to every 24 months plus one month.

**2.12.2** - If this time lapses without a successful re-certification, then the supplier must be removed as a certified supplier until re-certification is granted.

**2.13** - Supplier Requirements Table (§6.6) may be consulted as a guide for supplier requirements described in this GQMP.

**2.14** - All supplier documentation referenced in this document shall be uploaded to [Supplier Management System](#) for records.

**2.14.1** - To add or remove users to the Supplier Management System, [Supplier Management System Website Administrator](#) shall be contacted.

## **2.15 - Suppliers of Raw Surface Coating Materials**

**2.15.1** - Certified Suppliers of Raw SC materials (which obtained certification through an on-site audit) shall identify Incoming raw materials (e.g., pigments, resin, solvents, additives, etc.) using **batch** numbers that are assigned either by them or by their suppliers. Each material must be clearly identified with a traceable batch number throughout the manufacturing process.

**2.15.2** - Supplier shall conduct testing to their raw materials to verify compliance with [RMS 2901](#), [Raw Surface Coating Materials](#) and [QSOP 3610](#), [Plasticizers](#) / [QSOP 3612](#), [Plasticizers - Children's Products and General Consumer Products](#). Heavy elements testing shall be conducted on each batch of raw materials (except solvents).

## **2.16 - Material Type Classification & Material Risk Level files (for Heavy Elements and Phthalates Testing)**

**2.16.1** - The **Material Type** Classification and Material Risk Level for the purpose of Heavy Elements and Phthalates testing per [GQMP 2112](#), [Surface Coating Material Control](#) & [GQMP 2118](#), [Substrate Material control](#); may be accessed through the following links: [Mattel O&O Plant](#) / [Vendor Locations](#).

**2.16.2** - Changes to the Material Type classification / Material Risk Level files shall be requested to [Tony Chan](#)

([Vendor & Supplier Quality](#)). Approved changes will be communicated via email and uploaded to the applicable SharePoint site.

### 3 - TEST METHODS

#### 3.1 - Test Environment (N/A)

#### 3.2 - Equipment (N/A)

#### 3.3 - General Requirements (N/A)

#### 3.4 - Process

##### 3.4.1 - Supplier Approval Procedure

**3.4.1.1** - An on-site audit using the Audit Checklist and Report (as applicable, reference §6.1 or §6.2) shall be performed on all suppliers undergoing certification by means of an on-site audit. Findings must be based on a random sampling plan.

**3.4.1.2** - In lieu of the Audit Checklist and Report, a Source Evaluation Report (reference §6.3) shall be completed by all other suppliers to be approved by Mattel. For open market suppliers, complete a Open market approval form (reference §6.5).

**3.4.1.3** - It is the responsibility of the location certifying the supplier to manage their certification.

##### 3.4.1.4 - Supplier Declaration of Compliance (DoC)

**3.4.1.4.1** - Supplier shall comply with the Declaration of Compliance requirements referenced in §2.6.

**3.4.1.5** - Suppliers shall comply with [GQMP 2252](#), Bill of Substance.

##### 3.4.1.6 - Supplier Approval

**3.4.1.6.1** - Final supplier approval shall as applicable be obtained by the individuals referenced in §2.10.

**3.4.1.7** - Supplier information (e.g., DoC, SER, Attestation letter from [GQMP 2011](#), Component Testing, etc.) shall be uploaded to [Supplier Management System](#) and kept up to date.

### 4 - HISTORY

#### 4.1 - Reason For Revision (2115)

Section	Revision 5.00	Implementation
2.3.3.3	Updated to expand exemption to all FG Manufacturers.	Applicable after: <b>October 16, 2018</b>
2.6.1.1	Updated to allow DoC exemption from Non Certified Suppliers, provided approval from Regional HOD is granted.	Applicable after: <b>October 16, 2018</b>
2.6.1.2	Revised requirement to allow all Certified Suppliers Class A to extend their DoC renewal to every 24 months.	Applicable after: <b>October 16, 2018</b>
2.7	Removed Open Market exemption, as Bill of Substance does not allow for this exemption and clarified why Non-contacting Brokers are exempted from this requirement.	Applicable after: <b>October 30, 2018</b>
	As part of a Global Incoming Quality Control alignment project, <a href="#">Link to the Material</a>	Applicable after: <b>November 5, 2018</b>

2.16	Classification and Material Risk level files added; and description for updating these files.	<b>Note:</b> Locations may follow new conditions prior to <b>November 5, 2018</b> , provided all associated requirements are met.
6.4	Updated to include additional approval field to align with §2.6.1.1.	Applicable after: <b>October 16, 2018</b>
6.7	Deleted file as link to it was added in §2.16.	Applicable after: <b>November 5, 2018</b> <b>Note:</b> Locations may follow new conditions prior to <b>November 5, 2018</b> , provided all associated requirements are met.

Section	Revision 4.00	Implementation
Multiple	Revision 4.00 released to extend implementation date of previous revision.	Applicable after: <b>July 9, 2018</b> <b>Note:</b> Locations may follow new conditions prior to <b>July 9, 2018</b> , provided all associated requirements are met.
2.10.4.1.2 / 2.10.4.1.3	Corrected reference to the Source Evaluation Report (§6.3) for approval.	Editorial

#### 4.2 - Referenced Documents (None)

## 5 - FREQUENTLY ASKED QUESTIONS

### 5.1 - Question 1

**Question:** If a QSOP referenced in a DOC is updated 2 months after the DOC was signed, does the DOC need to be signed again?

**Answer:** No, DOC does not have to be signed again as long as the document reflects all applicable protocols to the supplier or as required by QSOP's/GQMP's.

### 5.2 - Question 2

**Question:** Are AA results comparable to ICP results?

**Answer:** Atomic Absorption (AA) results are comparable to Inductively Coupled Plasma (ICP) results in quantifying the presence of heavy elements.

### 5.3 - Question 3

**Question:** If a supplier with multiple locations becomes disqualified, is that supplier automatically disqualified as Mattel source for all their locations?

**Answer:** Yes, The Supplier may re-apply one time only for certified status no sooner than one year from the date of their disqualification.

### 5.4 - Question 4

**Question:** I have a broker of resin that is also adding an additive (compounding) to it. Would this still be considered a broker?

**Answer:** No, If this supplier of material is adding any value to the material (e.g. additive, colorant) then they are considered a manufacturer and not a broker.

### 5.5 - Question 5

**Question:** We are required to upload supplier information such as: DoCs, Attestations, and Approval forms to the [Supplier Management System](#). Are we required to maintain a revision history of these documents in the site? If yes, for what period of time shall we retain them?

**Answer:** No, revision history is not required to be maintained in the [Supplier Management System](#), only the latest document revisions are required to be maintained in the site, prior revision shall be maintained in a locally designated drive/file and managed per your local document retention policy.

## 6 - ATTACHMENTS

### 6.1 - Non-Raw Surface Coating - Audit Checklist and Report

[Non Raw SC Checklist](#)

### 6.2 - Raw Surface Coating - Audit Checklist and Report

[Raw SC Checklist](#)

### 6.3 - Source Evaluation Report

[Source Evaluation Report](#)

### 6.4 - Declaration of Compliance

[DoC](#)

### 6.5 - Open Market Approval Form


[Open Market Approval Form](#)

### 6.6 - Supplier Requirements Table

[Supplier Requirements Table](#)

## 7 - APPENDICES (None)

Mattel – Confidential Information  
2115 Supplier Approval Process

	TITLE			
	3600 Heavy Elements			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	3600	8.00	2018-12-13	Ying Gao
<b>QUALITY AND SAFETY OPERATING PROCEDURE</b> <b>Mattel – Confidential Information</b>				<b>FOR QUESTIONS CONTACT</b> Ying Gao

## 1 - SCOPE (3600 )

### 1.1 - Products and Components Covered

#### 1.1.1 - All toys and *child care articles*

#### 1.1.2 - Test the following to [QSOP 3602](#), Heavy Elements- Children's Products and General Consumer Products

- Non- toy/non-child care article children's products
- General Consumer Products

#### 1.1.3 - Test the following to [QSOP 3604](#), Heavy Elements ? Jewelry

- **Jewelry** intended to be worn by either a child or an adult
- Jewelry ornaments on clothing or shoes intended to be detachable so that they can be attached as a charm to a jewelry item such as a necklace, bracelet, etc.

#### 1.1.4 - Test the following to [QSOP 3606](#), Heavy Elements ? Children?s Apparel, Handbags and Similar Items

- Children?s apparel
- Handbags and similar items

#### 1.1.5 - Test the following to [QSOP 3607](#), Heavy Elements ? Cosmetics

- All cosmetics \*

\*Cosmetic toys shall comply with the requirements in both [QSOP 3600](#), Heavy Elements and [QSOP 3607](#), Heavy Elements - Cosmetics

#### 1.1.6 - Batteries and Battery- operated products must comply with the requirements in the [QSOP 3274](#), Batteries and Battery Operated Products.

#### 1.1.7 - All reusable packaging intended to be retained with the finished product

### 1.2 - Exemptions

**1.2.1** - If sample material is <10 mg the material is exempt from soluble method 1 requirements. Total and soluble method 2 requirements still apply.

**1.2.2** - Glass is exempt from total cadmium requirements. Soluble cadmium requirements still apply.

**1.2.3** - The following items are exempt from all requirements in this document with the exception of total Cadmium requirements and requirements contained in §2.4:

- Components that are not accessible after use and foreseeable abuse and are not contained within an accessible small part.



**1.2.4 - Promotional items** intended for adults.

**1.2.5** - Items listed in **Appendix III** are exempt from the total Pb requirements.

**1.2.6** - The following items are exempt from total nickel requirement

- Stainless steel
- Child care articles
- Material using nickel for electrical conductivity purpose.
- Nickel plated axles on toys suitable for >3 years old where the only accessible portion is the part that protrudes from the center of the wheel and the diameter of this portion is  $\leq 2.0$  mm. (Refer to §5 - Q&A 6)

**1.2.7** - Items listed in **Appendix V** are exempt from §2.4.

**1.2.8** - Metals are exempt from organotin requirements.

**1.2.9** - Products intended for children over 6 years and packaging intended to be retained for children over 6 years are exempt from the organotin requirements unless

- they are intended or likely to be put in the mouth or to the mouth. Items considered likely to be put in the mouth include cosmetic toys or writing instruments.
- they are intended for **prolonged skin contact**.

### **1.3 - Definitions** (Words that are defined are ***italicized and bolded*** once per section)

**1.3.1 - Accessible:** Any area of the product that can be contacted by any portion forward of the collar of the accessibility probes when inserted to the depth determined in [QSOP 3010, Accessibility](#).

**1.3.2 - Art Materials:** Any substance marketed or represented by the producer or repackaged for use in any phase of the creation of any work of visual or graphic art in any medium such as crayons, clay/modeling compounds, glues (liquid and stick), paints (finger, watercolor, liquid), markers and similar ?wet? medium, colored pencils, chalk, ball point pens and pencils.

**1.3.3 - Child Care Article:** Any product intended for children to facilitate seating, sleeping, relaxation, transportation, physical protection, hygiene and feeding or sucking/drinking.

**1.3.4 - Composite (Sample):** A sample made from combining more than one material or color (e.g. paint: red, yellow and blue), vacuum metalized coating (silver and gold). It is not considered compositing when colors or materials that can not be separated (e.g. thin stripes, doll eyes, etc.) are tested together.

**1.3.5 - Dry, Brittle, Powder Like or Pliable Materials:** Dry, brittle, powder like or pliable materials include solid toy materials from which power-like materials is released during playing and semi-solid materials that may also leave residues on the hands during play. The material can be ingested. Refer to the Appendix IV for determining category.

**1.3.6 - General Consumer Product:** A consumer product that is not designed or intended primarily for use by children 14 years old or younger. It is designed or intended primarily for use by consumer older than age 14 or consumers of all ages.

**1.3.7 - Jewelry Items:** Ornamental items that are intended to be worn in the hair or on the body. Examples would include rings, necklaces, bracelets, watches etc. This definition also includes jewelry kits that are intended to create jewelry items.

**1.3.8 - Liquid or Sticky Materials:** Liquid or sticky materials include fluid or viscous toy materials, which can be ingested or to which dermal exposure may occur during playing. Refer to the [Appendix IV](#) for determining category.

**1.3.9 - Prolonged Skin Contact:** Items are intended to be in direct contact with children’s skin over one hour. Such as, clothes, jewelry, bedding, and costumes. Items that are intended to be worn over clothing are not considered as prolonged skin contact. Items that are intended for dolls are not considered as prolonged skin contact.

**1.3.10 - Promotional Items:** Items provided to the consumer to promote a product or brand. These items may or may not be included in, or with, a product. Examples include items such as booklets, catalogs, bookmarks, growth charts, and posters. In some instances, a promotional item may be an actual product in package that is given away.

**1.3.11 - Scraped-off Materials:** Scraped-off materials include solid toy materials with or without a coating, which can be ingested as a results of biting, tooth scraping, sucking or licking. Refer to the [Appendix IV](#) for determining category.

**1.3.12 - Small Part:** A part that fits within the truncated test cylinder when evaluated per [QSOP 3020](#), [Small Parts](#), [Small Balls and Marbles](#).

**1.3.13 - Substrate:** The base material of an item, regardless of whether or not it has a **surface coating**. Labels and electroplating are both considered substrate materials.

**1.3.14 - Surface Coating:** All layers of materials such as paint or similar materials, that dry to a solid film when applied to a substrate and that can be scraped off with a sharp blade or washed off with a solvent such as acetone or ethanol, without removing the substrate (base) material. These are factory applied coatings on products.

**1.3.15 - Toy:** Any product or material designed or clearly intended for use in play by children less than 14 years of age.

## 1.4 - Purpose

Evaluate product for compliance to worldwide safety standards for heavy metals content.

## 2 - PERFORMANCE REQUIREMENTS

- Performance requirements must be met both before and after all applicable Use and Abuse testing.
- Products intended to be assembled by an adult should be evaluated for accessibility and for small parts after assembly.

### 2.1 - All Products

All inaccessible materials must have  $\leq 75$  ppm Total Cadmium (Cd) as shown in **Table 1**.

**Table 1** - Heavy Element Limits for Inaccessible Parts of All Products

ELEMENT	TOTAL (ppm)
Cadmium (Cd)	75

### 2.2 - Components Intended for Use Exclusively by Adults

#### 2.2.1 - Surface Coatings

The following must have  $\leq$  the limits listed in **Table 2**.

- All **accessible** surface coatings
- All surface coatings on packaging intended to be retained

**Table 2** - Heavy Element Limits for Surface Coatings on Products Used Exclusively by Adults

ELEMENT	TOTAL (ppm)
Cadmium (Cd)	75
Lead (Pb)	90

## 2.2.2 - Plastics

The following must have  $\leq$  the limits specified in **Table 3**.

- All accessible plastic parts
- All inaccessible plastic parts contained within accessible small parts
- All plastic in packaging intended to be retained

**Table 3** - Heavy Element Limits for Plastics in Products Used Exclusively by Adults

ELEMENT	TOTAL (ppm)
Cadmium (Cd)	75
Lead (Pb)	90

## 2.3 - All Toys and *Child Care Articles* (Including Non-Silkston Collectible Fashion Dolls Intended for Brazil)

### 2.3.1 - Surface Coatings

The following must have  $\leq$  the limits listed in **Table 4**.

- All accessible surface coatings
- All surface coatings on packaging intended to be retained

**Table 4** - Heavy Element Limits for Surface Coatings

ELEMENT	TOTAL (ppm)	SOLUBLE METHOD 1 (ppm)	SOLUBLE METHOD 2 (ppm)
Antimony (Sb)	-	60	1000
Arsenic (As)	-	25	1000
Barium (Ba)	-	1000	1000
Cadmium (Cd)	75	17	1000
Chromium (Cr)	-	60	-
Lead (Pb)	40	23	-
Mercury (Hg)	10	-	-
Selenium (Se)	-	460	1000
Aluminum (Al)	-	70000	-
Boron (B)	-	15000	-
Cobalt (Co)	-	130	-

Copper (Cu)	-	7700	-
Manganese (Mn)	-	15000	-
Nickel (Ni)	10000	930	-
Strontium (Sr)	-	56000	-
Tin (Sn)	-	180000	-
Zinc (Zn)	-	46000	-
Chromium (VI) (Cr VI)	-	0.053	-
Organic tin	-	12	-

## 2.3.2 - Metal, Glass, Gemstone and Ceramic

### 2.3.2.1 - Non-Small Parts

Accessible metal, glass, gemstone and ceramic must have  $\leq$  the limits listed in **Table 5**.

**Table 5** - Heavy Element Limits for Non-Small Part Metal, Glass, Gemstone & Ceramic

ELEMENT	TOTAL (ppm)
Cadmium (Cd)	75
Lead (Pb)	90
Nickel (Ni)	10000

### 2.3.2.2 - Small Parts

The following must have  $\leq$  the limits listed in **Table 6**.

- All accessible metal, glass, gemstones, and ceramics
- All inaccessible metal, glass, gemstones, and ceramics contained within accessible small parts

**Table 6** - Heavy Element Limits for Small Part Metal, Glass, Gemstone and Ceramic

ELEMENT	TOTAL (ppm)	SOLUBLE METHOD 1 (ppm)
Antimony (Sb)	-	60
Arsenic (As)		25
Barium (Ba)	-	1000
Cadmium (Cd)	75	17
Chromium (Cr)	-	60
Lead (Pb)	90	23
Mercury (Hg)	-	60
Selenium (Se)	-	460
Aluminum (Al)	-	70000
Boron (B)	-	15000

Cobalt (Co)	-	130
Copper (Cu)	-	7700
Manganese (Mn)	-	15000
Nickel (Ni)	10000	930
Strontium (Sr)	-	56000
Tin (Sn)	-	180000
Zinc (Zn)	-	46000
Chromium VI (CrVI)	-	0.053
Organic tin	-	12

### 2.3.3 - All Other Scrapped-off Materials

The following must have  $\leq$  the limits listed in **Table 7**.

- All accessible parts
- All inaccessible parts contained within accessible small parts
- All other accessible material used in packaging intended to be retained

**Table 7** - Heavy Element Limits for Scrapped-off Materials

ELEMENT	TOTAL (ppm)	SOLUBLE METHOD 1 (ppm)
Antimony (Sb)	-	60
Arsenic (As)	-	25
Barium (Ba)	-	1000
Cadmium (Cd)	75	17
Chromium (Cr)	-	60
Lead (Pb)	90,40*	23
Mercury (Hg)	-	60
Selenium (Se)	-	460
Aluminum (Al)	-	70000
Boron (B)	-	15000
Cobalt (Co)	-	130
Copper (Cu)	-	7700
Manganese (Mn)	-	15000
Nickel (Ni)	10000	930
Strontium (Sr)	-	56000
Tin (Sn)	-	180000
Zinc (Zn)	-	46000
Chromium VI (Cr VI)	-	0.053

Organic tin	-	12
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\* 40 ppm total lead limits only apply to the child care articles intended to be placed into a child's mouth.

### 2.3.4 - Dry, Brittle, Powder-like or Pliable Materials

The following must have  $\leq$  the limits listed in **Table 8**.

- All accessible parts
- All inaccessible parts contained within accessible small parts
- All other accessible material used in packaging intended to be retained

**Table 8** - Heavy Element Limits for Dry, Brittle, Powder-Like or Pliable Materials

ELEMENT	TOTAL (ppm)	SOLUBLE METHOD 1 (ppm)
Antimony (Sb)	-	45
Arsenic (As)	-	3.8
Barium (Ba)	-	250
Cadmium (Cd)	75	1.3
Chromium (Cr)	-	37.5
Lead (Pb)	90	2
Mercury (Hg)	-	7.5
Selenium (Se)	-	37.5
Aluminum (Al)	-	5625
Boron (B)	-	1200
Cobalt (Co)	-	10.5
Copper (Cu)	-	622.5
Manganese (Mn)	-	1200
Nickel (Ni)	10000	75
Strontium (Sr)	-	4500
Tin (Sn)	-	15000
Zinc (Zn)	-	3750
Chromium VI (Cr VI)	-	0.02
Organic tin	-	0.9

### 2.3.5 - Liquid or Sticky Materials

The following must have  $\leq$  the limits listed in **Table 9**.

- All accessible parts
- All inaccessible parts contained within accessible small parts
- All other accessible material used in packaging intended to be retained

**Table 9** - Heavy Element Limits for Liquid or Sticky Materials



ELEMENT	TOTAL (ppm)	SOLUBLE METHOD 1 (ppm)
Antimony (Sb)	-	10
Arsenic (As)	-	0.9
Barium (Ba)	-	350
Cadmium (Cd)	75	0.3
Chromium (Cr)	-	9.4
Lead (Pb)	90	0.5
Mercury (Hg)	-	1.9
Selenium (Se)	-	9.4
Aluminum (Al)		1406
Boron (B)		300
Cobalt (Co)		2.6
Copper (Cu)		156
Manganese (Mn)		300
Nickel (Ni)	10000	18.8
Strontium (Sr)		1125
Tin (Sn)		3750
Zinc (Zn)		938
Chromium VI (Cr VI)		0.005
Organic tin		0.2

## 2.4 - Additional Requirements for All Electrical and Electronic Products

**2.4.1** - All accessible and inaccessible parts must meet the flame retardant requirements of [QSOP 3614](#), Flame Retardants.

**2.4.2** - All accessible parts must comply with the requirements described from § 2.1 to §2.4 if applicable. All accessible and inaccessible parts must have ? the heavy element limits specified in **Table 10**.

**Table 10** - Heavy Element Limits: All Parts of All Products

ELEMENT	TOTAL (ppm)
Cadmium (Cd)	75
Chromium VI (Cr VI)	1000
Lead (Pb)	1000
Mercury (Hg)	1000

## 2.5 - Additional Requirements

**2.5.1** - Any PVC resin with a tin based stabilizer must be CKT series from Wofoo.

**2.5.2** - Surface coatings are not allowed to be applied to PVC using a tin-based stabilizer.

Note: CKT series PVC from Wofoo uses tin-based stabilizers; Clear PVC sheeting uses tin-based stabilizers.

**2.5.3** - PVC using a tin-based stabilizer must be tested after being subject to aging test per [QSOP 4400, Simulated Aging and Storage](#).

### 3 - PROCEDURE

#### 3.1 - Environment (N/A)

#### 3.2 - Equipment

Use equipment specified in procedures referenced in §3.4

#### 3.3 - General Requirements

**3.3.1** - If feasible, samples are to be tested in the same form they appear on the finished product, e.g. paint is tested in the dry state.

**3.3.2** - Coated surfaces require testing of both the surface coating and the substrate (base material) with the coating removed.

**3.3.3** - Colors or materials can be combined if they cannot be physically separated (e.g. overlapping colors of paint, adhesive on a label). This is not considered **composite** testing. For example, glues or adhesives that cannot be physically separated from the substrate (e.g. adhesive on a paper label) should be tested together with the substrate.

**3.3.4** - Composite testing is not permitted for Soluble 1 and 2 testing. This does not apply to Total digestion testing that is used to satisfy Soluble 1 and 2 limits per §3.4.1.

**3.3.5** - The analytical correction factors in the **Table 11** should be applied to Soluble 1 results per [GLOP 7409, Data Handling for the ICP](#). These correction factors should not be applied to total digestion results or Soluble 2 results.

**Table 11** - Analytical Correction

Elements	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical correction (%)	60	46.8	30	0	30	0	36.2	0

**3.3.6** - Composite testing, when permitted, must meet the following criteria:

- No more than 3 samples may be used
- Equal weights of each sample should be used
- Compositing must be done using similar materials with similar properties

**3.3.7** - Measures must be taken to ensure a failing result is not masked by the other samples in a composite. Acceptable methods for calculating the maximum possible concentration of an analyte in a single sample are detailed in CPSC test method CPSC-CH-E1003-09 and Mattel [GLOP 7406, Total Digestion for Heavy Element Analysis](#)

**3.3.8** - Test frequency is per the following:

- [GQMP 2112, Surface Coatings Material Control](#)
- [GQMP 2113, Heavy Elements Control on Surface Coatings for Vendors](#)
- [GQMP 2118, Substrate Material Control](#)
- [GQMP 2119, Heavy Elements Control on Substrates for Vendors](#)

### 3.3.9 - Requirements of §2.4

A declaration of compliance must be obtained from each supplier certifying compliance to §2.4. The declaration of compliance form can be found in [GQMP 2115](#), [Supplier Approval Process](#), **Appendix III**.

**3.3.10** - High risk materials for Cr VI under §2.3 shall be performed Cr VI testing. The compliance of other materials in §2.3 to Cr VI has been demonstrated by a product chemical safety assessment, therefore Cr VI testing is not required. High risk materials for Cr VI are **leather**.

## 3.4 - Method

### 3.4.1 - General

**3.4.1.1** - Laboratories may use the results from the total test to satisfy soluble 1 and soluble 2 requirements, if they have demonstrated that the Total digestion and analysis methods they employ are capable of accurately testing for all analytes of interest (As, Ba, Cd, Cr, Hg, Pb, Sb, Se, Al, B, Co, Cu, Mn, Ni, Sr, Sn, and Zn).

**3.4.1.1.1** - For As, Cd, Cr, Hg, Pb, Sb, Se, Al, B, Co, Cu, Mn, Ni, Sr, Sn, and Zn, if the total element test result is  $\leq$  the total and soluble limits, soluble test methods 1 and 2 are not required. For Barium (Ba), total result must be  $\leq$  50% of the respective Soluble 1 or Soluble 2 limit. If result is  $>$  50% of the respective limit, then the related soluble test must be performed (e.g. if the result is greater than 50% of Soluble 1 requirement, then the Soluble 1 test must be performed).

**3.4.1.1.2** - If the total test result is  $>$  the total limit, then the material fails and no further testing is performed. See **Appendix I** for examples.

**3.4.1.1.3** - Follow **Appendix II** if sufficient sample to conduct the testing cannot be collected from 12 units.

**3.4.1.1.4** - Materials falling into §2.3.4 and §2.3.5 need be tested by the external labs with ICP-MS per the following methods.

**3.4.1.1.5** - For organic tin in scraped - off materials, If total tin  $\leq$  12 ppm, soluble 1 testing is not required. If total tin  $>$  12 ppm, soluble 1 testing is required. If soluble 1 tin  $>$  2.5 ppm, the further testing is required to confirm the organic tin content. If soluble 1 tin  $\leq$  2.5 ppm, the GC-MS testing is not required.

### 3.4.2 - Mattel Internal Labs

Mattel internal test laboratories must follow appropriate Global Laboratory Operating Procedure

#### 3.4.2.1 - Total Test Methods

- Test Glass and Ceramic at an external laboratory.
- Test all other materials per [GLOP 7406](#), [Total Digestion for Heavy Element Analysis](#)
- Follow **Appendix II** if sufficient sample to conduct the testing cannot be collected from 12 samples.

#### 3.4.2.2 - Soluble Method 1

- Test per [GLOP 7408](#), [Soluble Extractions for Heavy Metal Analysis](#)
- If 10 mg of sample cannot be collected from 1 sample, do not perform an analysis.

#### 3.4.2.3 - Soluble Method 2

- Test per [GLOP 7408](#), [Soluble Extractions for Heavy Metal Analysis](#)
- Follow **Appendix II** if sufficient sample to conduct the testing cannot be collected from 12 samples

### 3.4.3 - External Labs

#### 3.4.3.1 - Total Test Methods

**3.4.3.1.1** - External labs shall not check total nickel requirement for finished goods.

**3.4.3.1.2** - Use one of the following digestion methods as applicable for all elements:

- AOAC Official Method 974.02, Lead in Paint
- EPA Method 3051A, Microwave Assisted Digestion of Sediments, Sludge, Soils, and Oils
- EPA Method 3052, Microwave Assisted Digestion of Siliceous and Organically Based Matrices
- CPSC-CH-E1003-09.1, Standard Operating Procedure for Determining Lead (Pb) in Paint and Other Similar Surface Coatings
- CPSC-CH-E1002-08, Standard Procedure for Determining Total Lead (Pb) in Non-Metal Children's Products
- CPSC-CH-E1001-08, Standard Procedure for Determining Total Lead (Pb) in Children's Metal Products (Including Children's Metal Jewelry)

**3.4.3.1.3** - Use one of the following methods as applicable for RoHS Hexavalent Chromium (CrVI) :

- Laboratories may use the results from the total test on Cr to satisfy Cr VI requirement. If total Cr result is < 1000 ppm, the following Cr VI test is not required.
- ISO 3613, Chromate Conversion Coatings on Zinc, Cadmium, Aluminum-zinc Alloys, Zinc-aluminum ? Test Methods or equivalent.
- EPA Test Method 3060, Alkaline Digestion for Hexavalent Chromium or equivalent.

**3.4.3.1.4** - Variations of these extraction and analysis methods and/or use of an alternate method are acceptable if, in the expert opinion of the test laboratory, they are declared to be equivalent or better. Analyze the digestion utilizing any suitable method based on the equipment used (AA or ICP) and the element content to be determined.

**3.4.3.1.5** - Follow **Appendix II** if sufficient sample to conduct the testing cannot be collected from 12 units.

#### **3.4.3.2 - Soluble Method 1**

**3.4.3.2.1** - Follow the latest revision ASTM F963 and EN 71-3 for soluble method 1

**3.4.3.2.2** - Analyze the solution for heavy elements content using either atomic absorption spectroscopy (AA) or inductively coupled plasma spectrometry (ICP).

**3.4.3.2.3** - The test method on Chromium VI and organic tin (GC-MS) has not determined yet.

#### **3.4.3.3 - Soluble Method 2**

**3.4.3.3.1** - Test and evaluate for soluble cadmium, barium, antimony, selenium and Arsenic per the latest revision of Health Canada Book 5 Laboratory Policies and Procedures, Part B, test method ?C03-1, Determination of Leachable Cadmium, Barium, Antimony, Selenium and Arsenic in Applied Coatings?.

**3.4.3.3.2** - Follow **Appendix II**, if sufficient sample to conduct the testing cannot be collected from 12 samples

### **4 - DOCUMENT HISTORY AND SUPPORTING INFORMATION**

#### **4.1 - Significance**

Compliance can be assured by using a testing and compliance system that will reduce the risk of finished products having an excessive amount of heavy elements.

Total Lead testing is required per CFR 1303 and the Consumer Product Safety Improvement Act of 2008 and per Amendment part II of Schedule I to Canadian Hazardous products Act (Consumer Products Containing Lead ? Contact with Mouth).

Soluble test method 1 is required per ASTM F963-17, EN 71-3-2013, ISO 8124-3, Mexico's NOM's, and India's IS 9873-3.

Soluble test method 2 is required per Canada's Hazardous Products Act (HPA). The HPA specifies that the test sample must be stirred in 5% hydrochloric acid for ten minutes at 20°C. A detailed methodology has been supplied by Health Canada (C03-1, Determination of Leachable Cadmium, Barium, Antimony, Selenium and Arsenic in Applied Coatings).

Total Cadmium testing is based on European Regulation (EC) No 1907/2006 Restriction, Evaluation, Authorization, and Restriction of Chemicals (REACH) and Danish Ordinance prohibiting the importation, sale and manufacture of cadmium containing products (BEK nr 858 of 05 Sept 2009).

The total mercury testing is also required per Canada's Hazardous Products Act. The Canadian HPA does not allow mercury to be intentionally added to the surface coating materials (SCM). A test result of >10 mg/kg (ppm) total mercury is considered the most reliable way to determine that no mercury has been introduced. No testing methodology is specified in the HPA.

§2.4 is required per the Restriction of Hazardous Substances Directive (RoHS). RoHS is an EU directive which requires electrical and electronic products to meet specific chemical limits and required by California's RoHS as well. [QSOP 3614, Flame Retardants](#) also contain requirements that pertain to RoHS covering PBB and PBDE flame retardants in electrical and electronic products.

#### 4.2 - Reason For Revision (3600)

Section	Revision 8.00	Implementation
4	Revised title of section.	Editorial
4.3	Updated the versions of the referenced documents	Editorial
4.4	Added section to identify any Mattel internal requirements contained in this procedure.	Editorial

Section	Revision 7.00	Implementation
4.3	Updates the versions of the referenced documents	Editorial

#### 4.3 - Referenced Documents

The following link contains the source documents and requirements related to this procedure:

[Detailed Procedure to Source Document Report](#)

#### 4.4 - Identification of Mattel Internal Requirements

Mattel internal requirements are requirements developed internally to minimize the potential for injuries to children but are not required by law.

**4.4.1** - All requirements in this QSOP are based on regulations. This QSOP contains no Mattel internal requirements.

### 5 - FREQUENTLY ASKED QUESTIONS

#### 5.1 - Question 1

**Question:** Should electroplating be tested as a surface coating or a substrate?

**Answer:** The process of electroplating deposits a layer of material that adheres so strongly to the substrate that it cannot easily scrape off. Because the material cannot be scraped, it is not considered to be a surface coating and therefore must be tested as a substrate

#### 5.2 - Question 2

**Question:** Should a label be tested as a surface coating or a substrate?

**Answer:** Labels are not considered surface coatings because they do not meet the definition of a surface coating in 16 CFR 1303. However, labels may contain surface coatings which should be tested accordingly. If the surface coating on a label is made inaccessible by way of a permanent seal, such as lamination, then the coating would no longer be considered a surface coating?the label should be tested as a substrate. The base material of the label should be tested according to the appropriate section for substrates.

### 5.3 - Question 3

**Question:** When testing the inaccessible parts of an electronic product for compliance, is it acceptable to only test the parts of the product that carry current?

**Answer:** All inaccessible parts of an electronic product must comply with the applicable limits described in §2.4, Additional Requirement for Electrical and Electronic Products. This includes not only current carrying components, but also non-current carrying components such as the inaccessible parts of the plastic housing of the product.

### 5.4 - Question 4

**Question:** Should electroplating be tested as a surface coating or a substrate?

**Answer:** The process of electroplating deposits a layer of material that adheres so strongly to the substrate that it cannot easily scrape off. Because the material cannot be scraped, it is not considered to be a surface coating and therefore must be tested as a substrate.

### 5.5 - Question 5

**Question:** After screening procedure, if GC-MS testing is triggered, which organic tins shall be tested?

**Answer:** Methyl tin (MeT), Di-methyl tin(DMT), Di-n-propyl tin(DproT), n-Octyl tin(MOT), Dibutyl tin(DBT), Di-n-octyl tin(DOT), Diphenyl tin(DphT), Tributyltin(TBT), Triphenyl tin(TphT),Tetrabutyl tin(TeBT), Butyl tin(BuT)

### 5.6 - Question 6

**Question:** What kinds of Nickel plated axles are exempt from total nickel requirement?

**Answer:** Nickel plated axles on toys suitable for > 3 years old where the only accessible portion is the part that protrudes from the center of the wheel and the diameter of this part is  $\leq 2.0$  mm are exempt as shown in **Figure 1**. Axles with other accessible portion not shown in **Figure 1** or the diameter of this accessible portion > 2.0 mm must comply with the total nickel requirement.



Figure 1: Example of an axle protruding from the center of the wheel.

## 6 - ATTACHMENTS

### 6.1 - APPENDICES

- **Appendix I** - Total Method Results to Satisfy Soluble Method Requirements
- **Appendix II** - Heavy Element Sample Requirements for Surface Coatings
- **Appendix III** - Exemptions from the Total Method Lead (Pb) Requirements of §2.3.2 and §2.3.3
- **Appendix IV** - Categories of Common Toy Materials
- **Appendix V** - Exemptions for §2.4



## **Appendix I - Total Method Results to Satisfy Soluble Method Requirement**

Example 1: Antimony Result in Surface Coating

<b>Total Result Antimony (ppm)</b>	<b>Soluble Antimony Method 1 limit: 60 ppm</b>	<b>Soluble Antimony Method 2 limit: 1000 ppm</b>
40	Less than soluble limit; do not test	Less than soluble limit; do not test
65	Exceeds soluble limit; test	Less than soluble limit; do not test
1200	Exceeds soluble limit; test	Exceeds soluble limit; test

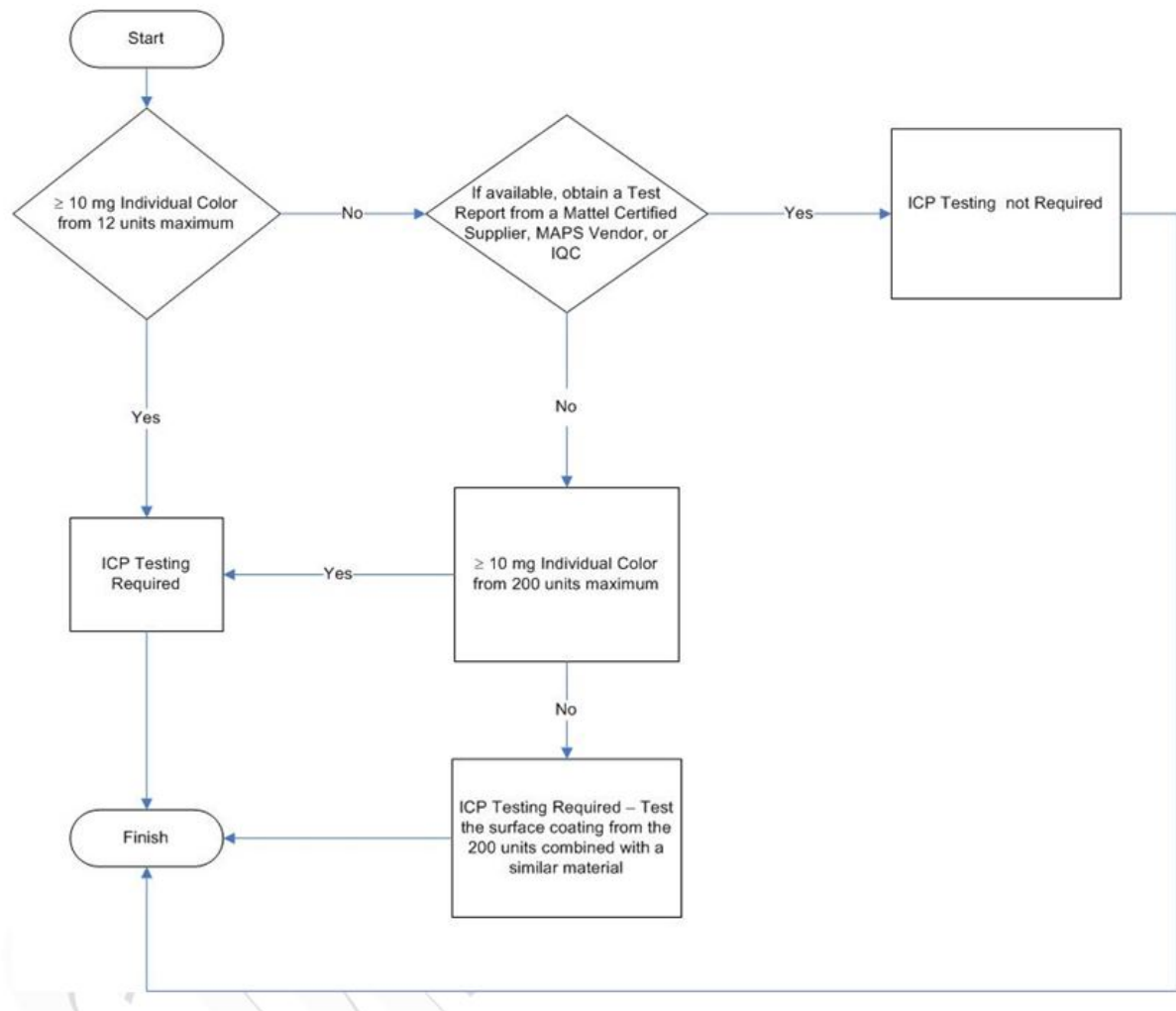
Example 2: Barium Result in Surface Coating

<b>Total Result Barium (ppm)</b>	<b>Soluble Barium Method 1 limit: 1000 ppm</b>	<b>Soluble Barium Method 2 limit: 1000 ppm</b>
40	≤ 500 ppm; do not test	≤ 500 ppm; do not test
250	≤ 500 ppm; do not test	≤ 500 ppm; do not test
750	Exceeds 500 ppm; test	Exceeds 500 ppm; test
1200	Exceeds 500 ppm; test	Exceeds 500 ppm; test

Example 3: Lead Result in Surface Coating

<b>Total Result Lead (ppm)</b>	<b>Soluble Lead Method 1 limit: 90 ppm</b>
30	Less than soluble limit; do not test
100	Exceeds <b>total</b> limit; sample fails, no further testing

## **Appendix II - Heavy Elements Sample Size Requirements**



Considerations:

- Applicable for finished goods testing (Reference [GQMP 2112, Surface Coating Material Control](#) and [GQMP 2113, Heavy Elements Control on Surface Coatings for Vendors](#)).
- Applicable for surface coatings and substrates
- Limit of 12 units applies to initial testing for Total digestion if  $\geq 10$  mg individual color is obtained from 12 units maximum
  - If the results indicate that Soluble 1 and/or Soluble 2 testing is required, then additional samples should be used to perform those tests (1 sample for Soluble 1 testing and a maximum of 12 units to perform soluble 2 testing).
  - If all three tests are needed, a maximum of 25 units should be used: twelve (12) for Totals, one (1) for Soluble 1, and twelve (12) for Soluble 2.
  - **Composite** testing should not be used when performing Soluble 1 or Soluble 2 testing.
- Limit of 200 units applies to the initial testing for total digestions if  $\geq 10$  mg individual color is not obtained from 12 units maximum following the above flow chart. When less than 10mg of individual color is obtained from 200 units combine this color with another similar material to obtain 10mg of total sample weight. Calculate the concentration using the sample weight of the combined sample.
- Any facility that manufactures products that Mattel sells as finished goods to a wholesale or retail customer is considered a vendor. Vendor is also known as Mattel Original Equipment Manufacturer (Mattel OEM). There are 2 Vendor categories

Major Vendor: A manufacturer that has demonstrated acceptable finished goods manufacturing

capabilities to supply Mattel's on-going needs, and who typically produces a significant quantity of Mattel product.

Specialty Vendor: A manufacturer that fulfills unique finished goods needs, and that typically produces a small quantity of Mattel product with infrequent production runs.

### **Appendix III - Exemptions from the Total Lead (Pb) Requirements of §2.3.2 and §2.3.3**

The following materials, when untreated or unadulterated by the addition of materials or chemicals and which has not undergone any processing which could introduce lead are considered exempt from Total Method lead (Pb) testing:

- Precious gemstones: diamond, ruby, sapphire, emerald.
- Semiprecious gemstones and other minerals, provided that the mineral or material is not based on lead or lead compounds and is not associated in nature with any mineral based on lead or lead compounds (excluding any mineral that is based on lead or lead compounds including, but not limited to, the following: aragonite, bayldonite, boleite, cerussite, crocoite, galena, linarite, mimetite, phosgenite, vanadinite, and wulfenite).
- Natural or cultured pearls.
- Wood.
- Paper and similar materials made from wood or other cellulosic fiber, including, but not limited to, paperboard, linerboard and medium, and coatings on such paper which become part of the substrate.
- CMYK process printing inks (excluding spot colors, other inks that are not used in CMYK process, inks that do not become part of the substrate under 16 CFR part 1303, and inks used in after-treatment applications, including screen prints, transfers, decals, or other prints).
- Textiles (excluding after-treatment applications, including screen prints, transfers, decals, or other prints) consisting of:
  - Natural fibers (dyed or undyed) including, but not limited to, cotton, kapok, flax, linen, jute, ramie, hemp, kenaf, bamboo, coir, sisal, silk, wool (sheep), alpaca, llama, goat (mohair, cashmere), rabbit (angora), camel, horse, yak, vicuna, qiviut, guanaco;
  - Manufactured fibers (dyed or undyed) including, but not limited to, rayon, azlon, lyocell, acetate, triacetate, rubber, polyester, olefin, nylon, acrylic, modacrylic, aramid, spandex.
- Other plant-derived and animal-derived materials including, but not limited to, animal glue, bee's wax, seeds, nut shells, flowers, bone, sea shell, coral, amber, feathers, fur, leather.
- Surgical steel and other stainless steel within the designations of Unified Numbering System, UNS S13800-S66286, not including the stainless steel designated as 303Pb (UNS S30360).
- Precious metals: Gold (at least 10 karat); sterling silver (at least 925/1000); platinum; palladium; rhodium; osmium; iridium; ruthenium, titanium
- Exemptions for total lead as used in certain electronic components parts in children's electronic devices include:
  - (1) Lead blended into the glass of cathode ray tubes, electronic components, and fluorescent tubes.
  - (2) Lead used as an alloying element in steel. The maximum amount of lead shall be less than 0.35% by weight (3,500 ppm).
  - (3) Lead used in the manufacture of aluminum. The maximum amount of lead shall be less than 0.4% by weight (4,000 ppm).
  - (4) Lead used in copper-based alloys. The maximum amount of lead shall be less than 4% by weight (40,000 ppm).
  - (5) Lead used in lead-bronze bearing shells and bushings.
  - (6) Lead used in compliant pin connector systems.
  - (7) Lead used in optical and filter glass.
  - (8) Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring, as well as in print pastes.

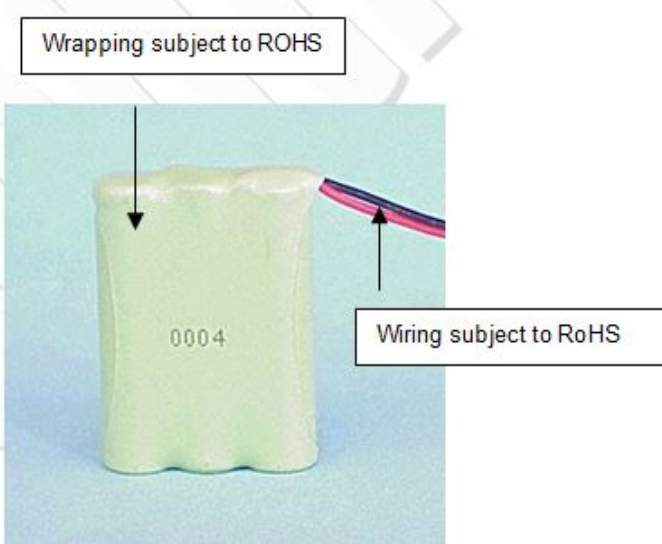
(9) Lead oxide in the glass envelope of Black Light Blue (BLB) lamps

**Appendix IV - Categories of Various Toy Materials - Cross-Reference Table for Determining Category**

Toy Material	Dry, brittle, power-like or pliable toy materials	Liquid or sticky toy materials	Scrapped off toy materials
Coatings of paints, varnishes, lacquers, printing inks, polymers, foams and similar <i>coatings</i>			X
Polymeric and similar materials, including laminates, whether textile reinforced or not, but excluding other textiles			X
<i>Paper and paper board</i>			X
Textiles, whether natural or synthetic			X
Glass, ceramic, metallic materials			X
<i>Other materials whether mass coloured or not</i> (e.g. wood, fibre board, hard board, bone and leather)			X
Compressed paint tablets, materials intended to leave a trace or similar materials in solid form appearing as such in the toy (e.g. the cores of colouring pencils, chalk, crayons)	X		
Pliable modelling materials, including modelling clays and plaster	X		
Liquid paints, including finger paints, varnishes, lacquers, liquid ink in pens and similar materials in liquid form appearing as such in the toy (e.g. glue sticks, slimes, bubble solution)		X	

**Appendix V - Exemptions to §2.4**

	EXEMPTIONS	GUIDANCE
1	Battery cells	<p>Battery Cells are exempt; however, any wires connected to batteries are not exempt and any materials used to wrap batteries are not exempt (e.g., wires and wrapping materials used in battery packs).</p> <p>Batteries must be tested per <a href="#">QSOP 3274</a>, <u>Batteries and Battery Operated Products</u>.</p>

1	Battery cells	
2	Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.	<p>A compact fluorescent lamp (CFL) is usually defined as a single-ended fluorescent lamp with a bent discharge tube of small diameter, of around 10-16 mm, to form a very compact unit. These lamps can be either integral, whereby the lamp and ballast are combined (also known as self-ballasted or self-supporting), or pin-based.</p> <p>For the purpose of this exemption, CFLs can contain no more than 5 mg of mercury per lamp.</p>
3	<p>Mercury in straight fluorescent lamps for general purposes not exceeding:</p> <ul style="list-style-type: none"> <li>• 10 mg in halophosphate lamps</li> <li>• 5 mg in triphosphate lamps with a normal lifetime.</li> <li>• 8 mg in triphosphate lamps with a long lifetime.</li> </ul>	<p>A straight, or linear, fluorescent lamp is a fluorescent lamp of straight tubular form and bi-pin electrical connections at either end.</p> <p>The color properties of straight fluorescent lamps are determined by the phosphors used to coat the inside of the tube. Halophosphate and triphosphate are examples of such fluorescent materials.</p> <p>Straight fluorescent lamps for general purpose can be defined as lamps used for general lighting solutions, in contrast to lamps used for special purposes (see item 4 below).</p>
4	Mercury in straight fluorescent lamps for special purposes.	<p>Examples of such lamps are LCD back light lamps, disinfection lamps, medical/therapy lamps, pet care lamps (e.g. aquaria lamps), lamps with special components (e.g. integrated reflectors or external protection sleeves), lamps with special ignition features (e.g. designed for low temperatures), long length lamps (length &gt; 1800 mm) and amalgam lamps.</p> <p>In this context, there is no restriction on the quantity of mercury in these lamps.</p>
		Examples of other lamps containing mercury are high intensity

5	Mercury in other lamps not specifically mentioned in this Appendix.	<p>discharge (HID) lamps (e.g. sodium lamps and metal halide lamps), circular fluorescent lamps and U-shaped fluorescent lamps.</p> <p>In this context, there is no restriction on the quantity of mercury in these lamps.</p>
6	Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.	<p>Lead, or more specifically lead oxide, is often used in glass for electrical and electronic equipment to obtain specific characteristics, such as radiation protection (CRTs, medical applications), filtering (photography, image processing) and strengthening purposes (e.g. production of fluorescent tubes). This exemption has been introduced because viable alternatives for these applications have not yet been identified.</p> <p>For clarity, the exemption applies to lead as a constituent in the glass used in cathode ray tubes, lead as a constituent in the glass used in electronic components and lead as a constituent in the glass used in fluorescent tubes.</p>
7	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.	<p>Lead is often used as an alloying element to obtain specific properties of a metal alloy. This exemption applies to the use of lead in steel up to 0.35% by weight, in aluminum up to 0.4% by weight and in copper alloys up to 4% by weight. In the context of this exemption, “percentage by weight” has to be interpreted as “the percentage of lead per homogeneous material per discreet part”. For example, if the steel housing of a computer consists of two separate parts, each part can contain up to 0.35% lead by weight of that part.</p>
8	Lead in high melting temperature type solders (i.e. lead based alloys containing more than 85% by weight or more lead).	<p>For the purposes of applications 8, 9 and 10 in this Appendix, it is useful to clarify the term “solder”. In this appendix, “solder” is defined as “alloys used to create metallurgical bonds between two or more metal surfaces to achieve an electrical and/or physical connection”. In this context, the term “solder” also includes all materials that become part of the final solder joint, including solder finishes on components or printed circuit boards.</p> <p>The high melting temperature type solder exemption has been introduced to allow the use of lead in solders for specific applications (such as in power semiconductor package manufacturing), for which viable lead-free alternatives have not yet been identified. This exemption is permitted as there are no alternative alloys with similar melting point and which are ductile. The high electrical conductivity and unique mechanical properties of such a high melting point tin-lead alloy make the material malleable and better able to withstand both temperature and physical stress. Such properties ensure fewer defects during manufacturing and high reliability throughout the life of the component, thereby also resulting in fewer components going into the waste stream.</p>
		<p>See definition of “solder” given for application 8 above.</p> <p>This exemption has been introduced to allow the use of lead in</p>



		<p>Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunication,</p>	<p>solders for professional, high reliability applications, such as servers and network infrastructure equipment, for which viable lead-free alternatives have not yet been identified.</p> <p>In this context, a “server” is seen as a computer that meets one of the technology criteria that are set out in section (a) below, and the functional criteria set out in section (b) below.</p> <p><i>(a) Technology criteria for a server</i></p> <p>1) Designed and placed on the market as a Class A product as per EN55022:1994 under the EMC Directive 89/336/EEC (intended primarily for use in the professional environment) and designed and capable of having a single or dual processor capability (one or more sockets on board); or</p> <p>2) Designed and placed on the market as a Class B product (intended primarily for use in the domestic environment) as per EN55022:1994 under the EMC Directive 89/336/EEC and designed and capable of having at least dual processor capability (two sockets on board).</p> <p><i>(b) Functional design criteria for a server</i></p> <p>1) Designed and capable of operating in a mission-critical, high-reliability, high-availability application in which use may be 24 hours per day and 7 days per week, and unscheduled downtime is extremely low (minutes per year).</p> <p>Examples of typical server functions are the provision of network infrastructure, gateway or switching services, the hosting and management of data on behalf of multiple users, or the running of server-capable operating systems (e.g. as for a web server).</p> <p>It is the view of the UK’s Department for Business Innovation and Skills (BIS) that this exemption is viewed as applying to lead in the solder of the whole of the computer and its components including processors, memory boards, power converters, power supplies, enclosed housings, modular power subsystems and adapter cards. It would also seem to apply to the lead in the solder of the components that are integrated into the whole computer or that are sold separately for use in an exempt server. The lead in the solder of cable assemblies, and all connectors and connector assemblies used to provide interconnections for the server, would also be covered by this exemption.</p> <p>It should be noted that this exemption is not viewed as applying to parts or components that are peripheral to the server, nor does it apply to parts or components when they are used other than in an exempt server.</p> <p>For the purpose of the RoHS Regulations, a “storage or storage array system” is viewed as any storage device or subsystem that meets one of the following criteria:</p> <p>1) Designed and placed on the market as a Class A product as per EN55022:1994 under the EMC Directive 89/336/EEC; or</p> <p>2) Designed and placed on the market as a Class B product as per EN55022:1994 under the EMC Directive 89/336/EEC and designed</p>	
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		<p>to meet one of the following two criteria: -</p> <p>a) Any storage device capable of accepting direct or switched input from more than one computer, for example fibre channel and SCSI devices, or</p> <p>b) Any storage fabric or switching device for interconnecting storage devices to server products.</p> <p>It is the view of BIS that this exemption is viewed as applying to the whole of the device or subsystem and their components including processors, memory boards, power converters, power supplies, enclosed housings, modular power subsystems and adapter cards. It would also seem to apply to the components that are integrated into the whole storage or storage array system or that are sold separately for use in an exempt storage or storage array system. Cables and cable assemblies, and all connectors and connector assemblies used to provide interconnections for the storage or storage array system, would also be covered by this exemption.</p> <p>It should be noted that this exemption does not apply to parts or components that are peripheral to the storage or storage array system, nor does it apply to parts or components when they are used other than in an exempt storage or storage array system.</p> <p>For the purpose of the RoHS Regulations, “network infrastructure equipment for telecommunication purposes” is viewed by BIS as equipment meeting one of the two following criteria:</p> <p>1) Any system used for routing, switching, signalling, transmission, or network management or network security; or</p> <p>2) Any system which can simultaneously enable more than one end user terminating equipment to connect to a network.</p> <p>It is also any such system in a network, <u>except</u> for end user terminating equipment such as voice terminals and facsimile machines.</p> <p>This would include all servers, power supplies, display devices and similar electronic units that are incorporated into network infrastructure equipment. It would also include all cables and cable assemblies, and all connectors and connector assemblies used to provide interconnections for network infrastructure equipment but is not intended to include desktop or notebook computers, telephones, fax machines or consumer – type modems or switches etc.</p>
10	Lead in electronic ceramic parts (e.g. piezoelectronic devices).	<p>Ceramic materials are used in a variety of electronic devices including capacitors, insulators, piezoelectrics, magnets and integrated circuit packages. Some of these ceramic materials contain lead, for example lead zirconate titanate and lead magnesium niobate. The specific chemical composition and manufacturing process of these materials determine their electrical parameters, such as dielectric constant and the dissipation that is essential for the functioning of the component in which they are used. Hence, lead used in the ceramic parts of electronic components in electrical and electronic equipment is exempt from these Regulations.</p>
	Cadmium and its compoints in electrical	<p>Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous</p>

11	<p>contacts and cadmium plating except for applications banned under Directive 91/338/EEC (OJ No. L 186, 12 July 1991, p. 59) amending Directive 76/769/EEC (OJ No. L262, 27 September 1976, p. 201) relating to restrictions on the marketing and use of certain dangerous substances and preparations.</p>	<p>substances and preparations, gives the following definition of cadmium plating: "Within the meaning of this Directive, 'cadmium plating' means any deposit or coating of metallic cadmium on a metallic surface." This definition is seen as applying for the purpose of the RoHS Regulations.</p> <p>Subsequently, the Marketing and Use Directive (as amended) bans the use of cadmium plating in a variety of product sectors.</p> <p>As a result, in this context cadmium plating is viewed as being permitted for electrical contacts in all the WEEE categories to which the RoHS Regulations apply except for products manufactured in the household goods and central heating and air conditioning plant sectors because the latter are restricted by the Marketing &amp; Use Directive. However, that Directive does allow the use of cadmium plating for "electrical contacts in any sector of use, on account of the reliability required of the apparatus on which they are installed."</p>
12	<p>Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.</p>	<p>As absorption cooling works on several different types of energy sources such as gas, kerosene, batteries or electricity, absorption fridges are often used in recreational vehicles (e.g. motor homes and caravans) or remote places where electricity is not available. Another typical application is for minibars in hotel rooms as these fridges are virtually noiseless.</p> <p>The applied heat and use of a water-ammonia mixture results in a corrosive environment that warrants the use of hexavalent chromium. This exemption has been introduced, since viable alternatives for this specific application have so far not been identified.</p>
13	<p>Lead in lead-bronze bearing shells and bushes.</p>	<p>Lead-bronze bearing shells and bushes are used, amongst others, in compressors for stationary refrigeration and air conditioning equipment. Typical characteristics of such compressors include a long design life (over 50,000 hours for residential applications and over 100,000 for commercial applications) and a hermetic sealing to prevent refrigerant leakage and ensure reliable, uninterrupted operation without service for up to 15 years. Combined with the unique technical aspects of the refrigeration cycle (dry-starts, miscibility of the lubricant, repeated condensing and boiling, etc.), the bearings need excellent self-lubrication properties to meet the high durability and reliability requirements. Due to its lubricious nature, the use of lead as a bearing constituent is critical in these applications. This exemption has been introduced because so far no suitable alternative has been identified, although other materials have been extensively tested.</p>
14	<p>Lead used in compliant pin connector systems.</p>	<p>Compliant pin contacts are used to attach connectors or components to a double-sided printed circuit board. This connector system avoids the need for soldering during manufacturing, thereby avoiding the overheating of components and damaging the integrity of the connectors and board material and allows separation for repair. Such pins are coated with a tin-lead alloy to ensure good electrical conductivity, maintain sufficient spring-back force and facilitate</p>

		<p>insertion of the pins into the boards. The use of tin-lead also reduces the risk of tin whiskers, which may affect reliability.</p> <p>This exemption has been introduced because suitable alternatives to the tin-lead alloy have not yet been identified.</p>
15	Lead as a coating material for the thermal conduction module c-ring.	<p>A thermal conduction module c-ring serves a specific purpose in the manufacturing of high performance electronic modules. Such modules are the key components of a mainframe central processing unit and typically contain multiple chips. The c-ring functions as a hermetical seal, continuously dissipating heat and preventing oxidation of solder joints.</p> <p>While substitutes for lead in this application have been investigated, no feasible alternative has so far been identified.</p>
16	Lead and cadmium in optical and filter glass.	<p>Lead and cadmium are used in optical glass and filter glass to obtain specific properties and meet quality standards, for a wide variety of applications including in the photo industry (e.g. camera lenses), in projectors, scanners, printers and copiers.</p> <p>This exemption has been introduced because suitable alternatives for many of these applications have not yet been identified.</p>
17	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight.	<p>Microprocessors are mounted onto boards or substrates by way of a socket. Such sockets require that a large number of pins (up to 950) are mounted onto the microprocessor for completing the necessary electrical connections. The high customer quality demands for these products mean that such packages are extensively tested, which necessitates high adhesion strength of the pins. This is even more critical at higher pin counts and the application of lead in the proportions specified in this exemption is essential to achieve the necessary properties.</p> <p>Substitute materials without lead are used by some manufacturers but for high pin counts, the development of alternatives before July 1, 2006 would create significant quantities of waste. This exemption has been introduced to allow for the development of alternative designs without generating excessive amounts of waste.</p>
18	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages	<p>Flip chips are attached to their packages or PCBs using very small solder bumps and many types use solder bumps containing lead. Lead is used for two main reasons. Its ductility reduces the risk of damage to brittle parts of flip chip circuitry. Lead also protects against the possibility of thermal fatigue, which results from cyclic temperature changes and is not well understood with lead-free solders. High melting point solder bumps are attached using solder containing typically 37% – 40% lead to the package because this combination has a high resistance to a phenomenon called “electromigration” which in higher power flip chip packages would otherwise cause premature failure of the device. The solder connections to the chip are known as level 1 and level 1 flip-chip connections may contain lead. The external solder connections between packages and PCB known as level 2 are excluded from this exemption as viable alternatives have been developed.</p>

19	Lead in linear incandescent lamps with silicate coated tubes.	<p>An incandescent lamp generates light using a glowing filament heated to white-hot by an electrical current. This light-giving process is known as incandescence.</p> <p>A linear incandescent lamp is a tubular filament lamp with pin connectors at either end. The glass is coated on the inside with silicate that contains lead. The lead assists in binding the silicate to the glass.</p> <p>In this context there is no restriction on the use of lead in these lamps.</p>
20	Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications.	<p>High Intensity Discharge (HID) lamps produce light by striking an electrical arc across tungsten electrodes housed inside a specially designed inner fused quartz or fused alumina tube. This tube is filled with both gas and metals. The gas aids in the starting of the lamps and the metals produce the light once they are heated to a point of evaporation.</p> <p>Certain HID lamp types contain lead-iodide (<math>PbI_2</math>) as a component in the filling. These lamps are used in professional U.V. applications: the curing, reprography and label printing industries. The lead is used for creating the correct lamp emission spectrum and lamp effectiveness.</p> <p>In this context there is no restriction on the use of lead halide as a radiant agent in these lamps.</p>
21	Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP ( $BaSi_2O_5:Pb$ ) as well as when used as specialty lamps for diazo-printing reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ( $(Sr, Ba)_2MgSi_2O_7:Pb$ ).	<p>Discharge lamps work by sending an electric current through a special gas. Depending on the gas, this either generates light directly or the current generates ultra-violet light, which is converted to visible light by fluorescent powders.</p> <p>Lead is used as an activator in fluorescent powders for two classes of special fluorescent lamp products: -</p> <ol style="list-style-type: none"> <li>1. Sun tanning lamps contain phosphors such as BSP (<math>BaSi_2O_5:Pb</math>), with an emission peak of 350 nm; and</li> <li>2. Certain specialty lamps (applications: diazo-printing reprography, lithography, insect traps, photochemical and curing processes) contain the phosphors such as SMS (<math>(Sr, Ba)_2MgSi_2O_7:Pb</math>), generating a broad emission peak centered at 360 nm.</li> </ol> <p>The presence of lead creates the proper lamp emission spectrum and optimum lamp effectiveness.</p> <p>This exemption applies to the use of lead as an activator in the fluorescent powder of discharge lamps used in the above applications up to 1% by weight.</p>
	Lead with $PbBiSn-Hg$ and $PbInSn-Hg$ in	<p>There are two main parts to a compact fluorescent lamp (CFL): the gas-filled tube and the magnetic or electronic ballast. Electrical energy from the ballast flows through the gas in the tube causing it to give off ultraviolet light. The ultraviolet light excites a white phosphor coating on the inside of the tube. This coating then emits a visible light, which is the final product of the CFL.</p>

22	specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact Energy Saving Lamps (ESL).	<p>Very compact Energy Saving Lamps (ESL) with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and PbSn-Hg as auxiliary amalgam</p> <p>The substances (both main &amp; auxiliary amalgams) control the Hg-vapour pressure inside small CFLs, stabilizing the light output and lamp effectiveness over a wide temperature range. This makes it possible to replace incandescent lamps by CFLs in a wide range of applications, both indoor and outdoor.</p> <p>In this context there is no restriction on the use of lead in the form of an amalgam or auxiliary amalgam in these lamps.</p>
23	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD)	<p>Lead is currently used in the glass panel of Liquid Crystal Display (LCD) screens. Two glass substrates are bonded with high precision by inserting glass spacers in between, to keep the same gap. Lead is used there to prevent overheating of the glass, which would result in image distortion and malfunction. It is found in the form of a solder with a concentration of 70% lead by weight, used to create a safe electrical contact on the plane glass surface. Lead containing glass solder is also used to assemble the flat-panel glass envelope.</p> <p>In this context there is no restriction on the use of lead in the form of an oxide in the glass.</p>
24	Lead and cadmium in printing inks for the application of enamels on borosilicate glass.	<p>Borosilicate glass items are printed with scales and warnings in order to improve usability and ensure consumer safety. These markings must be permanently readable.</p> <p>The printing on the glass uses an ink, which is fired and melts together with the glass surface, and contains significant amounts of lead oxide (37%-48% by weight) and cadmium oxide (11% by weight). Applications using this process to print onto borosilicate glass include: coffee jugs; water boilers; electric water kettles; lamp covers; laser tubes; ozone tubes; and medical devices.</p> <p>In this context, there is no restriction on the use of lead and cadmium in the printing inks.</p>
	Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with NiFe lead frames and lead	<p>The electrical terminations of virtually all electronic components (integrated circuits, memory "chips," diodes, resistors for example) must be plated with a thin layer of metal to make them capable of being soldered to the printed circuit board. Today, these terminal platings are most commonly comprised of a tin-lead (Sn-Pb) alloy.</p> <p>One of the main reasons lead is included in the plating is to mitigate the formation and growth of tin "whiskers". Tin whiskers are electrically conductive, crystalline structures of tin that sometimes grow from surfaces where tin (especially electroplated tin) is used as a final finish.</p> <p>Tin whiskers have been observed to grow to lengths of several millimeters (mm) and in rare instances to lengths up to 10 mm. Numerous electronic system failures have been attributed to short circuits caused by tin whiskers that bridge closely-spaced circuit elements maintained at different electrical potentials.</p>

25	in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with copper lead frames.	<p>Lead is used as a whisker suppresser in electroplated Sn coating. The concentration of Pb in the plating alloy is typically below 20%, and the thickness of the plating is only about 10 micrometers.</p> <p>These tin whiskers can cause functional failure of electronic products once they grow long enough to create short circuits between adjacent electrical terminations. Fine-pitch parts are the most susceptible to such failures because the distance between the conductive leads is small. Modern electronic equipment requires the use of such fine-pitch parts to meet the computation speed and/or small size requirements of the market.</p> <p>For the purpose of this exemption, fine-pitch components are defined as those with electrical terminations spaced with centers 0.65 mm or less apart. In such parts, the distance between adjacent leads is considerably smaller than the centre-to-centre spacing, and is typically 125 to 300 micrometers.</p>
26	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors.	<p>RFI signal line filters are manufactured by soldering axial leads into machined ceramic multi layer through hole devices (discoidal capacitors or planar arrays) and mounting into metal bodies or connector shells.</p> <p>Due to the novel construction of the capacitor, it is necessary to use ductile solders to make these solder joints so as to prevent the ceramic cracking as a result of tensile stresses generated during the cooling of the assembly.</p> <p>The solders used contain lead along with other alloys (primarily indium) to maintain the ductility required. These solders are typically 50% lead and 50% indium.</p> <p>In this context there is no restriction on the use of lead in the form of lead in solders for these components.</p>
27	Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring as well as in print pastes	<p>The front substrate consists of the bus electrode and the dielectric layer for the protection of the bus electrodes. The rear substrate consists of the address electrode, the dielectric layer, the barrier rib and fluorescent material. By sealing the front and rear substrates together, a gas (usually Ne-Xe) is injected into the panel. PDPs emit light by producing an ultraviolet ray that excites the fluorescent material. The main substance of PDP material consists of PbO, SiO<sub>2</sub>, B<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub>, CaO, TiO<sub>2</sub>, ZnO, etc.</p> <p>PbO renders the melting point lower with its presence in the paste and tends to optimize the sintering characteristics of the material.</p> <p>In this context there is no restriction on the use of lead in the form of PbO in these components.</p>
		Black light (also Wood's light) is the common name for a lamp emitting electromagnetic radiation that is almost exclusively in the soft near ultraviolet range, and very little visible light.


28	Lead oxide in the glass envelope of Black Light Blue (BLB) lamps.	<p>BLB lamps produce black light that peaks in the soft ultraviolet at a wavelength of 365 nm, with almost no light in the visible spectrum; they appear deep purple violet to the human eye when operating, and black when turned off. These lamps are used to excite UV-sensitive paints and dyes and for other purposes, especially in special effects, security applications, and medicine.</p> <p>The amount of PbO in the glass envelope is typically 20 wt%, = 18 wt% Pb.</p> <p>The lead in the form of PbO is essential for creating the proper lamp emission: optimal optical properties: maximum transmission of UV light, and minimum visible light transmission.</p> <p>In this context there is no restriction on the use of lead in the form of PbO in these components.</p>
29	Lead bound in crystal glass.	<p>The use of lead in glass leads to a high refractive index (brilliance), a strong dispersion and a high transmission of the light. Additionally, the use of lead in glass introduces further favorable thermal and mechanical properties in melting, forming, cutting and in post-processing.</p> <p>In electric and electronic equipment this form of glass is used in pure (colorless) or colored form for decorative and/or functional purposes, such as lamps, chandeliers, decoration of mobile phone covers, clocks and watches.</p> <p>According to Council Directive 69/493/EEC, full lead crystal consists at least of 28% lead calculated as lead oxide (therefore &gt;30% lead oxide).</p> <p>Lead is bonded in the silicate matrix of glass and therefore immobilized and not biologically available. The absolute amount of lead depends on the mass of the article.</p> <p>In this context there is no restriction on the use of lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC.</p>
30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more.	<p>This exemption allows for the use of special high melting point solders that contain about 70% cadmium, to solder the voice-coil wires of a novel design of small and light-weight but high-powered loudspeakers. The loudspeakers that require this exemption are a patented design and operate at close to 300°C and with very high g-forces due to the vibration of the loudspeaker. Few cadmium-free solders have a suitable melting temperature; even so-called high melting point solders which are covered by the exemption mentioned in paragraph 8 above melt at about 300°C. The light-weight design is achieved by the use of aluminum wires and the few cadmium-free solders with a suitably high melting point such as zinc/aluminum are too aggressive and dissolve the aluminum.</p>
		<p>This exemption permits the use of lead in the material used to form a</p>



31	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting).	<p>gas tight bond for a new type of flat fluorescent lamp that is mercury free and has an unusually long life. Research has not yet identified a material that can form a permanent gas tight bond without lead. Although referred to as a "soldering material", this is a lead based low melting point glass with ~70% lead oxide which melts on heating the lamp assembly to form the bond and seal the lamp. These lamps can be used as backlights for LCDs, as well as for lighting and other applications. They are thicker than the narrowest types of special straight fluorescent lamps that do need to contain mercury and are used where there is limited space available such as in laptop computers. Lead in these special lamps is already covered by the exemption in paragraph 23 above, but this exemption allows lead in special thin flat lamps but only for LCD.</p>
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes.	<p>The optical windows of Argon and Krypton lasers are sealed using special glass frit materials that contain lead oxide. Frit seals are made with low melting point glasses in powder form and these form a glass bond when heated to above their melting point. The optical windows and the laser tube are both quartz and only seals made with lead based glass provide the correct combination of properties that allow the vacuum tight bond to be made and precisely align the windows with a high yield.</p> <p>Argon and Krypton lasers are used as tools for cutting materials. They are also used for medical applications such as eye surgery although medical lasers are in Category 8 of the WEEE Directive and, therefore, currently outside the scope of the RoHS Directive.</p>
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	<p>Copper transformer wires are connected to terminals by soldering but copper dissolves in the liquid solder. In the time taken to make a solder joint, it is possible for all of the copper to dissolve if the wire is very thin resulting in weak bonds. The rate at which copper dissolves depends on the solder composition, the temperature and time at high temperature. The rate of dissolution is faster in lead-free solder than in tin/lead solder at the same temperature. The slowest dissolution rate is achieved with tin/lead solder alloys that also contain ~3% copper. Standard lead-free solders with &lt;1% copper dissolve the copper wire much more rapidly. Another issue is that it can take longer to make a lead-free bond than a tin/lead bond so that more copper dissolves. High power transformers use very fine wires and generate high voltage and so the solder bond must be domed to avoid arcing and this increases the time required to make the bond. To burn off the enamel coatings used on fine copper wires requires the use of a high temperature and this also increases the copper dissolution rate. Enamel coated transformer wires of 100 µm diameter or less cannot be soldered with lead-free solders as too much copper dissolves resulting in a weak bond and so solders containing lead must be used.</p>
		<p>Cermet based potentiometers are electronic components used to provide an adjustable electrical resistance. This type of potentiometer is the only type suitable for high current, high humidity or high temperature operation. The device contains a cermet disc with a</p>

34	Lead in cermet-based trimmer potentiometer elements	resistive coating of ruthenium oxide with lead oxide that is applied as a paste which is heated to melt the lead oxide to give a strong, wear-resistant bond. The lead imparts the necessary wear resistance and a stable electrical resistance. Similar coatings of lead with ruthenium oxide are widely used in chip resistors which are generally regarded as being covered by RoHS exemption 7c (lead in electronic ceramic parts) but neither the applicant nor the Commission could determine if the cermet potentiometer application was covered by RoHS exemption 7c or by RoHS exemption 5 (lead in glass of cathode ray tubes, electronic components and fluorescent tubes) and so this exemption has been granted to allow the use of lead in the resistive materials of cermet potentiometers.
35	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display until 1 July 2010	Most plasma displays on the market, including plasma TVs, are AC types which do not contain mercury. However this exemption applies to DC type plasma displays which contain small amounts of mercury. DC plasma displays that show information (eg numbers) are quite different to AC plasma television displays. Inside the display, DC voltages are applied between anodes and cathodes to generate the plasma. With DC, the charge flows in one direction so that electrons hitting the cathode slowly erode the surface by a process referred to as "sputtering". Mercury vapour within the plasma display effectively retards sputtering of the cathodes giving the display an acceptable life. No alternative materials have yet been found to replace mercury. The exemption is granted only until 1 July 2010 because research into substitute materials is underway.
36	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	High voltage glass diodes are made with a special type of glass based on zinc borate with ~2.5% lead. The glass composition is designed to match the thermal expansion coefficient of the component's terminals. The terminals are electroplated with a tin coating and during assembly, small quantities of lead from the glass diffuse into the tin coating giving it a composition with up to 0.3% lead. Although the lead in the glass of the diode is covered by exemption No. 5 of the RoHS Annex, the lead that has diffused into the tin coating is not covered by any other existing exemptions.
37	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	Hybrid circuits based on alumina substrates are widely used in electronics but for certain specific and demanding applications, beryllium oxide substrates are required. The hybrid circuit consists of a number of layers of insulators, dielectrics and metals that are applied to create the electrical circuit. Semiconductor dies are attached to the circuitry commonly with fine aluminium wires that are bonded to the metal conductors of the hybrid circuit using ultrasonic wire-bonding. The materials of the hybrid circuitry must bond strongly to each other and to the substrate and not de-bond during the thermal processing or when aluminium ultrasonic wire-bonding is carried out. Traditionally, hybrid materials have contained lead and cadmium oxide to form low melting point glasses that melt during processing to create a strong bond. RoHS compliant hybrid materials have been developed that are suitable for the more common alumina substrates but none are yet available that are suitable on beryllium oxide.



	TITLE			
	3610 Plasticizers			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	3610	6.00	2019-03-04	Ying Gao
<b>QUALITY AND SAFETY OPERATING PROCEDURE</b> <b>Mattel – Confidential Information</b>				<b>FOR QUESTIONS CONTACT</b> Ying Gao

## 1 - SCOPE (3610)

### 1.1 - Products and Components Covered

1.1.1 - The following components of all **Toys and Childcare Articles**, including **Promotional Items** and packaging intended to remain with the product.

- 1.1.1.1 - Plastic parts (see Exemptions)
- 1.1.1.2 - Glues/adhesives
- 1.1.1.3 - Cosmetics
- 1.1.1.4 - Synthetic rubber
- 1.1.1.5 - Sealants
- 1.1.1.6 - Lubricants
- 1.1.1.7 - Solids in aerosols
- 1.1.1.8 - Foamed plastics
- 1.1.1.9 - Modeling clay
- 1.1.1.10 - Fragranced/scented items
- 1.1.1.11 - **Surface coatings**
- 1.1.1.12 - Inks which are not absorbed into the substrate

### 1.2 - Exemptions

1.2.1 - Test the following products per [QSOP 3612](#), Plasticizers - Children's Products and General Consumer Products

- Non-toy/non-**child care article** children's products
- *General Consumer Products*

1.2.2 - **Ordinary books** intended for children  $\geq 3$  years old.

1.2.3 - Packaging materials intended to be discarded.

1.2.4 - Batteries

1.2.5 - Inaccessible materials in products, accessories, or peripherals intended to be used exclusively by adults.

1.2.6 - The following plastics, if the composition is confirmed by a bill of materials (BOM) or component / material specification<sup>1</sup>.

- Polyoxymethylene (POM)/Acetal
- Acrylonitrile butadiene styrene (ABS)

- Nylon
- Polybutylene Terephthalate (PBT)
- Polycarbonate (PC)
- Polycyclohexylenedimethylene Terephthalate Glycol (PCTG)
- Polyethylene (PE) including HDPE, LDPE, etc.
- Polyethylene Terephthalate (PET)
- Polypropylene (PP)
- Polystyrene (PS) including HIPS, SHIPS, etc.
- Styrene Butadiene Copolymer (SBC)

<sup>1</sup> External laboratories may use alternate means to determine if a plastic part qualifies for this exemption

#### 1.2.7 - Inaccessible portions of Power Wheels batteries

### 1.3 - Definitions (Words that are defined are *italicized and bolded* once per section)

**1.3.1 - Accessible:** Any area of the toy that can be contacted by any portion forward of the collar of the accessibility probes when inserted to the depth determined in [QSOP 3610, Plasticizers](#).

**Note:** Any part of the product covered by fabric, when in one dimension is smaller than 5 centimeters, is considered accessible; When vinyl or other plasticized material covered mattresses/sleep surface that are designed or intended to facilitate sleep of children age 3 and younger, are considered accessible.

**1.3.2 - Child Care Article:** Any product intended for children to facilitate seating, sleeping, relaxation, transportation, physical protection, hygiene and feeding or sucking/drinking.

**1.3.3 - General Consumer Product:** A consumer product that is not designed or intended primarily for use by children 14 years old or younger. It is designed or intended primarily for use by consumer older than age 14 or consumers of all ages.

**1.3.4 - Novelty Books:** Books that include internal and/or external play features involving interaction more than simply reading. The book may incorporate plastic, metal or electronic components and may contain play features, take along toy activities or crafts.

**1.3.5 - Ordinary Books:** Books published on cardboard or paper through conventional publishing methods solely intended to be read. **Novelty books** are not considered ordinary books

**1.3.6 - Plasticizer:** An additive that increases flexibility and durability of a material. This QSOP is to address phthalates based plasticizer.

**1.3.7 - Promotional Items:** Items provided to the consumer to promote a product or brand. These items may or may not be included in, or with, a product. Examples include items such as booklets, catalogs, bookmarks, growth charts, and posters. In some instances, a promotional item may be an actual product in package that is given away.

**1.3.8 - Surface Coating:** All layers of materials such as paint or similar materials, that dry to a solid film when applied to a substrate and that can be scraped off with a sharp blade or washed off with a solvent such as acetone or ethanol, without removing the substrate (base) material. These are factory applied coatings on products.

**1.3.8.1 - NOTE:** For the purpose of phthalate testing, inks which are not absorbed into the substrate, should be removed and tested separately. Inks which are absorbed into the substrate should be tested along with the substrate (if the substrate is within the scope of this QSOP). Glitter coatings, including those applied to fabric, should be tested as a surface coating

**1.3.9 - Toy:** Any Product or Material designed or clearly intended for use in play by children less than 14 years of age.

### 1.4 - Purpose

To evaluate products for compliance to worldwide safety standards for plasticizer content

## 2 - PERFORMANCE REQUIREMENTS

Performance requirements must be met both before and after all applicable Use and Abuse testing.

### 2.1 - Accessible Parts of Toys and Child Care Articles Intended to be Used Exclusively by Adults (e.g. power supply for an infant swing)

Must contain less than 0.1% (1000 ppm) by weight of each of the following plasticizers:

- di-“isodecyl” phthalate (DIDP) CAS Nos. 26761-40-0 and 68515-49-1
  - di-n-hexyl phthalate (DnHP) CAS No. 84-75-3
  - di-“isononyl” phthalate (DINP) CAS Nos. 28553-12-0 and 68515-48-0
- And less than 0.1% (1000 ppm) by weight cumulatively (added together) of the following plasticizers
- Di (2-Ethylhexyl) Phthalate (DEHP) CAS No. 117-81-7
  - Benzyl butyl Phthalate (BBP) CAS No. 85-68-7
  - Dibutyl Phthalate (DBP) CAS No. 84-74-2
  - Diisobutyl phthalate (DiBP) CAS No. 84-69-5

### 2.2 - All Other Accessible Materials

Must contain less than 0.1% (1000 ppm) by weight cumulatively (added together) of the following plasticizers:

- Di (2-Ethylhexyl) Phthalate (DEHP) CAS No. 117-81-7
  - Benzyl butyl Phthalate (BBP) CAS No. 85-68-7
  - Dibutyl Phthalate (DBP) CAS No. 84-74-2
  - di-“isononyl” phthalate (DINP) CAS Nos. 28553-12-0 and 68515-48-0
  - di-“isodecyl” phthalate (DIDP) CAS Nos. 26761-40-0 and 68515-49-1
  - di-n-octyl phthalate (DnOP) CAS No. 117-84-0
- And less than 0.1% (1000 ppm) by weight of di-n-hexyl phthalate (DnHP) CAS No. 84-75-3.
- And less than 0.1% (1000 ppm) by weight cumulatively (added together) of the following plasticizers
- Di (2-Ethylhexyl) Phthalate (DEHP) CAS No. 117-81-7
  - Benzyl butyl Phthalate (BBP) CAS No. 85-68-7
  - Dibutyl Phthalate (DBP) CAS No. 84-74-2
  - Diisobutyl phthalate (DiBP) CAS No. 84-69-5

And less than 0.1 % (1000 ppm) by weight of Di-n-pentyl phthalate (DPP/DPENP) CAS No. 131-18-0.

And less than 0.1% (1000 ppm) by weight of Dicyclohexyl phthalates (DCHP) CAS No. 84-61-7.

### 2.3 - All Other Inaccessible Material

Must contain less than 0.1% (1000 ppm) by weight cumulatively (added together) of the following plasticizers:

- Di (2-Ethylhexyl) Phthalate (DEHP) CAS No. 117-81-7
- Benzyl butyl Phthalate (BBP) CAS No. 85-68-7
- Dibutyl Phthalate (DBP) CAS No. 84-74-2
- Diisobutyl phthalate (DiBP) CAS No. 84-69-5

<sup>1</sup>Additional abuse testing should not be performed on inaccessible materials

### 2.4 - Modeling Clay

The requirements for modeling clay are the same as those of §2.2 *except* that modeling clay must contain less 0.01% (100 ppm) by weight of di-n-hexyl phthalate (DnHP) CAS No. 84-75-3

### 2.5 - Additional Information

Only the following plasticizers may be used in accessible materials, except for insulation on current carrying wires that are accessible before and after use and abuse testing:

- Citroflex A-4 available from Vertellus (Morflex)
- Citrofol B-2 available from Jungbunzlauer GmbH
- Di-isononyl-cyclohexane (DINCH) from BASF
- Eastman 168 available from Eastman
- TXIB ( 2,2,4-trimethyl-1,3-pentanediol diisobutyrate)
- GLOBINEX W-230-S from DIC for paint and ink only

### 3 - PROCEDURE

#### 3.1 - Environment (N/A)

#### 3.2 - Equipment

Reference [GLOP 7420](#), Determination of Phthalates for equipment.

#### 3.3 - General Requirements

**3.3.1** - If feasible, samples are to be tested in the same form they appear on the finished product, e.g. paint is tested in the dry state

**3.3.2** - Colors or materials can be combined if they cannot be physically separated. This is not considered composite testing. For example, glues or adhesives that can not be physically separated from the substrate (e.g. adhesive on a paper label) should be tested together with the substrate.

**3.3.3** - For surface coatings, a composite sample (of no more than 3 materials) is also allowed

**3.3.4** - Composite testing, when permitted, must meet the following criteria:

- No more than 3 samples may be used
- Equal weights of each sample should be used
- Compositing must be done using similar materials with similar properties
- Data must be evaluated to ensure that a failing result is not masked. Evaluate as though the entire concentration of the composite sample is coming individually from a single sample. Evaluate each sample in the composite in this fashion. Internal labs should use [GLOP 7420](#), Determination of Phthalates as guidance.

**3.3.5** - Test frequency is per the following:

- [GQMP 2112](#), Surface Coatings Material Control
- [GQMP 2118](#), Substrate Material Control
- [GQMP 2117](#), Phthalates Control for Vendors

**3.3.6** - For books, follow **Appendix 2** to determine which components are subjected to testing.

#### 3.4 - Method

##### 3.4.1 - Mattel Internal Labs

Must follow [GLOP 7420](#), Determination of Phthalates.

##### 3.4.2 - External Labs

Perform extraction and analysis of phthalates using any validated method described in the US Consumer Products Safety Commission (CPSC) document CPSC-CH-C1001-09.2.

**3.4.3** - Follow **Appendix 1** if sufficient sample to conduct the testing cannot be collected from 12 samples.

### 4 - DOCUMENT HISTORY AND SUPPORTING DOCUMENT

## 4.1 - Significance

Documents Mattel policy for phthalate content

## 4.2 - Reason For Revision (3610)

Section	Revision 6.00	Implementation
2.2 & 2.3	Updated the DIBP requirement per Regulation (EU) 2018/2005 amending Regulation (EC) 1907/2006	Applies to all products manufactured on and after: <b>July 1, 2019</b>

Section	Revision 5.00	Implementation
4	Revised title of section.	Editorial
4.3	Updated section to remove previous references and replace with a hyperlink to a Detailed Procedure to Source Document report in Polarion.	Editorial
4.4	Added section to identify any Mattel internal requirements contained in this procedure.	EDitorial

## 4.3 - Referenced Documents

The following link contains the source documents and requirements related to this procedure:

[Detailed Procedure to Source Document Report](#)

## 4.4 - Identification of Mattel Internal Requirements

Mattel internal requirements are requirements developed internally to minimize the potential for injuries to children but are not required by law.

**4.4.1** - All Requirements in this QSOP are based on regulations. This QSOP contains no Mattel Internal requirements.

## 5 - FREQUENTLY ASKED QUESTIONS

### 5.1 - Question 1

**Question:** Are all chargers considered “Accessories, peripherals, and products that are intended to be used exclusively by adults” exemption?

**Answer:** No. Some chargers are intended to be used by children. Others, such as chargers for Power Wheels, are intended to be used exclusively by an adult. These chargers would be tested according to §2.1.

### 5.2 - Question 2

**Question:** Please provide some examples for footnote of §2.3 --“Additional abuse testing should not be performed on inaccessible materials”

**Answer:** Inaccessible materials within the scope of the procedure must be tested for the 4 phthalates listed in this section. The footnote was intended to prevent someone from performing additional abuse testing on parts that become accessible after initial abuse testing. Here are two examples that should clarify things:

**Example 1** - A toy car contains a speaker that is inaccessible. The car is subjected to abuse testing and there is no damage or breakage of the car. The materials that are accessible and within the scope of the QSOP (e.g. PVC windshield, tires made of synthetic rubber, etc.) are tested for eight phthalates per §2.2. All inaccessible materials that are within the scope of the QSOP (e.g. adhesive holding a speaker wire, the wire insulation, etc.) are tested to §2.3 for the four phthalates listed in that section.

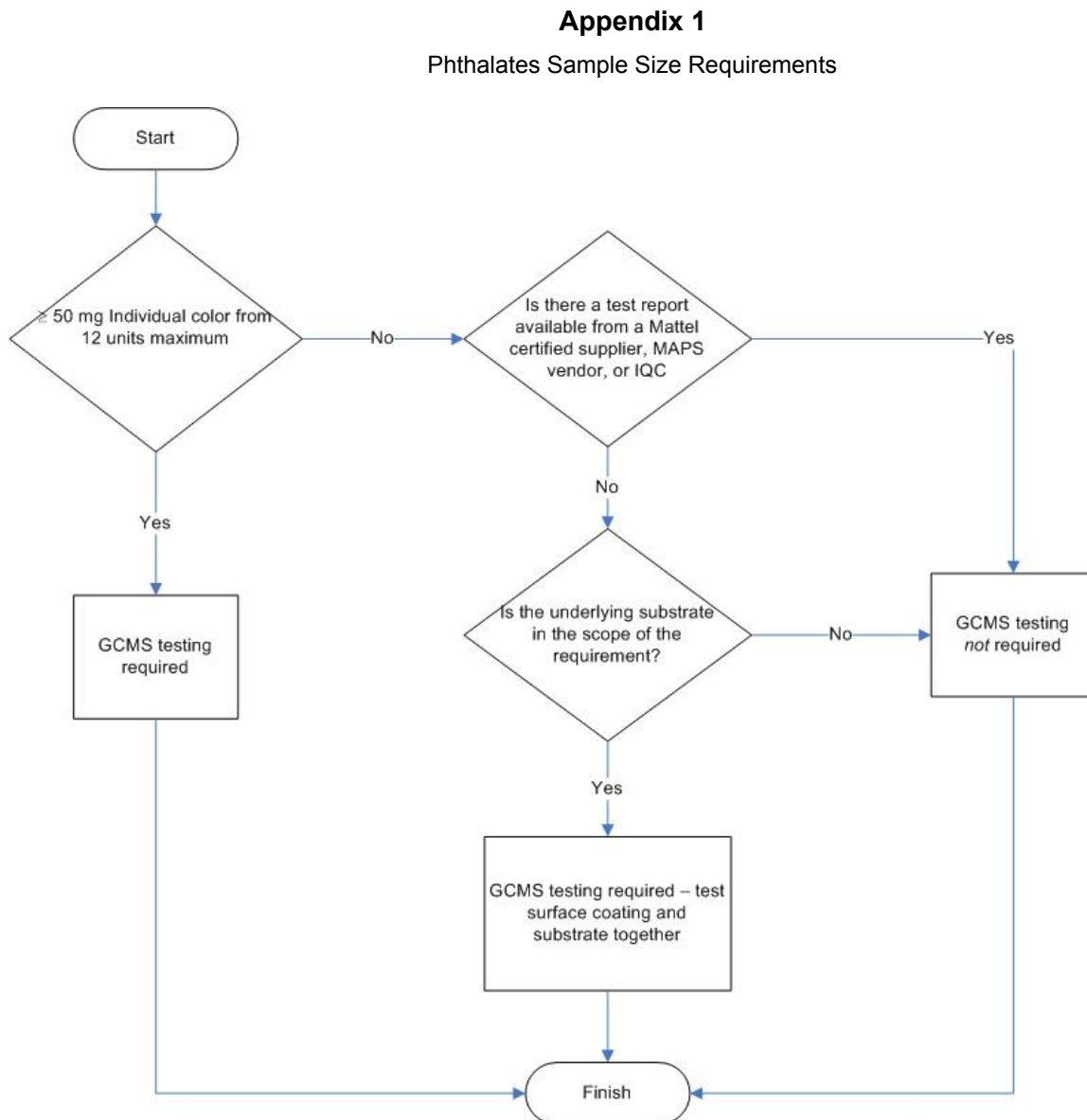


**Example 2** - A toy car contains a speaker that is inaccessible. The car is subjected to abuse testing and a piece of the car chassis breaks off. The insulation on the speaker wire can now be contacted by the accessibility probe. This insulation is now subjected to the requirements of §2.2. The speaker can now be contacted by the accessibility probe, but the adhesive on the speaker cannot be touched by the accessibility probe. The adhesive on the speaker must meet the requirements of §2.3 only (DEHP, DBP, BBP, DiBP). No further abuse testing is done on the speaker simply because it is now accessible.

## 6 - ATTACHMENTS (None)

## 7 - APPENDICES

### 7.1 - Appendix 1 - Phthalates Sample Size Requirements



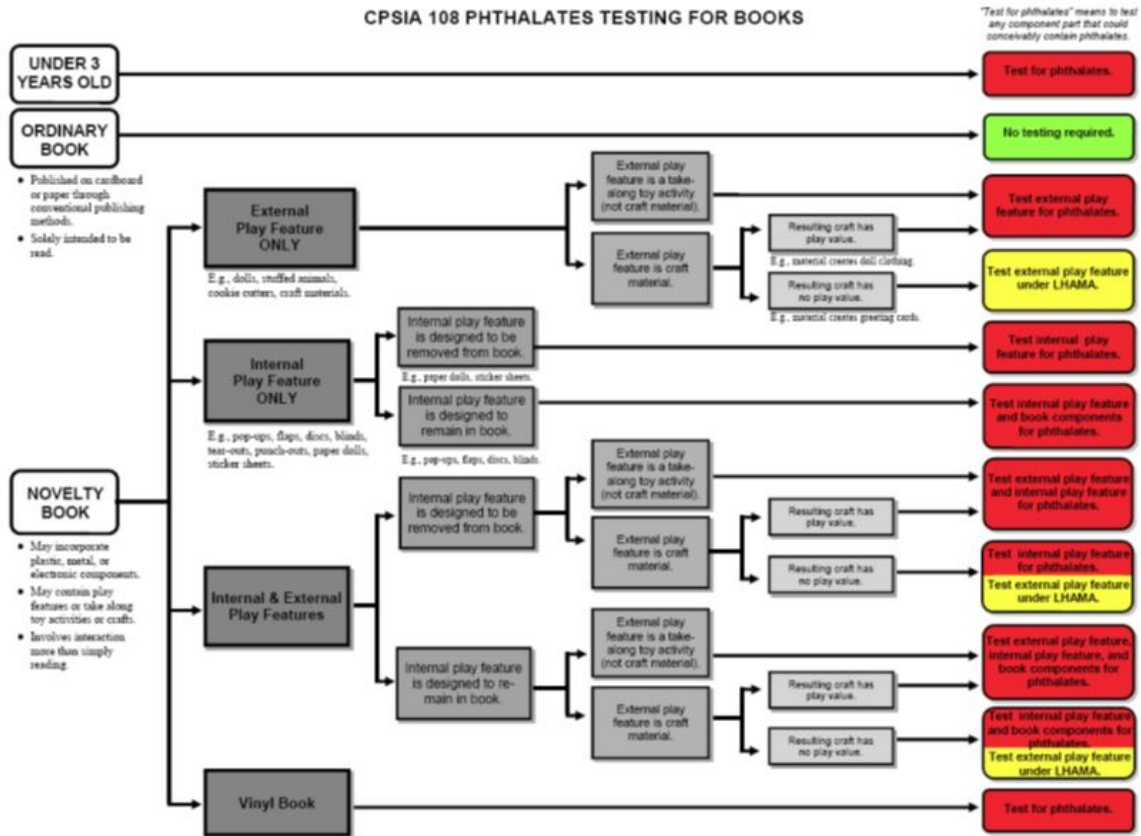
#### Considerations:

- When testing a surface coating together with the substrate, select a portion of the sample which maximizes the amount of surface coating to be tested
- Applicable for surface coatings and substrates
- When incoming test report is referenced here, ensure the material is compliant with the existing standards.

### 7.2 - Appendix 2 - CPSIA 108 Phthalates Testing for Books


## Appendix 2

### CPSIA 108 PHTHALATES TESTING FOR BOOKS



Mattel – Confidential Information

3610 Plasticizers

	TITLE			
	3614 Flame Retardants			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	3614	5.00	2019-05-06	Ying Gao
<b>QUALITY AND SAFETY OPERATING PROCEDURE</b> <b>Mattel – Confidential Information</b>				<b>FOR QUESTIONS CONTACT</b> Ying Gao

## 1 - SCOPE (3614)

### 1.1 - Products and Components Covered

1.1.1 - All fabrics

1.1.2 - All materials in electrical and electronic finished goods, including those materials that are not electrical/electronic components (e.g. plastic housing)

1.1.3 - All plastics including foams, resins, plastic parts, synthetic rubber, and so on

### 1.2 - Exemptions

1.2.1 - Metals

1.2.2 - Ceramics

1.2.3 - Glass

1.2.4 - Packages intended to be discarded

### 1.3 - Definitions (Words that are defined are ***italicized and bolded*** once per section)

**1.3.1 - Fabric:** All flat surface and raised-fiber textile materials yarn, ribbons, thread, string, rope, and other similar materials. Vinyl, urethane, or similar materials used as fabric components, including fabric items backed by these materials.

**1.3.2 - Homogeneous Material:** A material that has uniform composition throughout, or, a material consisting of a combination of materials that cannot be mechanically disjointed into different materials. This means that the materials can not be separated by mechanical actions such as unscrewing, cutting, crushing, grinding or abrasive processes.

**1.3.3 - Electrical and Electronic Finished Goods:** Finished goods that are dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields; designed for use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current; where “dependent” is defined as “needing electric currents or electromagnetic fields to fulfill at least one intended function.”

**1.3.4 - Juvenile Products:** Products (not toys) used by children such as carriages, full-size cribs, gates, high chairs, portable hook-on-chairs, strollers and walkers.

### 1.4 - Purpose

Evaluate the product for compliance to the worldwide safety standards for flame retardants

## 2 - PERFORMANCE REQUIREMENTS

2.1 - The contents of the flame retardants in the ***homogenous material*** shall not exceed the limits noted in **Table 1**.

**Table 1 - Requirements of Flame Retardants**

Chemical Name	CAS No.	Limits (mg/kg)

Tris (2,3-dibromopropyl) phosphate	126-72-7	25
Tris (aziridiny) phosphin oxide	545-55-1	1000
Tri-o-cresyl phosphate	78-30-8	50
Tris (2-chloroethyl) phosphate (TCEP)	115-96-8	5
Tris(2-chloro-1-methylethyl) phosphate (TCPP)	13674-84-5	5
Tris (1,3-Dichloro-2-propyl) phosphate (TDCPP)	13674-87-8	5
Polybrominated-biphenyls (PBBs)	59536-65-1	1000
Polybrominated-biphenyl ethers (PBDEs)	N/A	1000
Polychlorinated terphenyls (PCTs)	N/A	50
Hexabromocyclododecane (HBCD)	25637-99-4	1000
Tetrabromobisphenol A (TBBPA)	79-94-7	1000
2-ethylhexyl-2,3,4,5 tetrabromobenzoate (TBB)	183658-27-7	1000
Bis(2-ethylhexyl) tetrabromophthalate (TBPH)	26040-51-7	1000
Pentabromodiphenyl ether (PentaBDE)	32534-81-9	1000
Bis(chloromethyl) propane-1,3-diyltetrakis (2-chloroethyl) bisphosphate or Phosphoric acid, P,P'[2,2-bis(chloromethyl)- 1,3-propanediyl]P,P', P',P'-tetrakis(2-chloroethyl) ester(V6)	38051-10-4	25
Isopropylated triphenyl phosphate (IPTPP)	68937-41-7	25

**2.2** - Any part of juvenile products sold in the US, shall not contain a flame retardant chemical at a level above 1,000 parts per million with the exception of electrical or electronic components. Flame retardant chemicals include, but are not limited to, halogenated, phosphorous based, nitrogen based, and nanoscale flame retardants.

**2.3** - A declaration of compliance must be obtained from each supplier to certify compliance to this QSOP. The declaration of compliance form can be found in the [GQMP 2115](#), [Supplier Approval Process](#), Appendix III.

### 3 - PROCEDURE

**3.1 - Environment** (None)

**3.2 - Equipment** (None)

**3.3 - General Requirements** (None)

**3.4 - Method** (None)

### 4 - DOCUMENT HISTORY AND SUPPORTING INFORMATION

#### 4.1 - Significance

Set forth Mattel's requirement for flame retardants.

#### 4.2 - Reason for Revisions (3614)

Section	Revision 5.00	Implementation
1.3.4	Added the definition of Juvenile products	Editorial

2.2	Added an additional restriction on Juvenile Products per San Francisco's law.	Applies to all <b>Juvenile Products</b> shipped to the <b>US</b> on and after: <b>July 1, 2019</b>
2.3	Updated the name of GQMP 2115	Editorial

Section	Revision 4.00	Implementation
4	Revised title of section.	Editorial
4.3	Updated section to remove previous references and replace with a hyperlink to a Detailed Procedure to Source Document report in Polarion.	Editorial
4.4	Added section to identify any Mattel internal requirements contained in this procedure.	Editorial

### 4.3 - Referenced Documents

The following link contains the source documents and requirements related to this procedure:

[Detailed Procedure to Source Document Report](#)

### 4.4 - Identification of Mattel Internal Requirements

Mattel internal requirements are requirements developed internally to minimize the potential for injuries to children but are not required by law.

**4.4.1** - All requirements in this QSOP are based on regulations. This QSOP contains no Mattel internal requirements.

## 5 - FREQUENTLY ASKED QUESTIONS

### 5.1 - Question 1

**Question:** What are PBBs, PBDEs and PCTs?

**Answer:** PBBs is a group of brominated flame retardants including from mono- to deca-brominated biphenyls. PBDEs is a group of brominated flame retardants including from mono- to deca- brominated biphenyl ethers. PCTs is a group of chlorinated flame retardants. Table 2 shows the common PBBs, PBDEs, and PCTs, but not limited to.

**Table 2** - Common PBBs, PBDEs, and PCTs


	Chemical Name	CAS No.
Polybrominated-biphenyls (PBBs)	Polybrominated-biphenyls (PBBs)	59536-65-1
	4-Bromo biphenyl	92-66-0
	4,4'-Dibromo biphenyl	92-86-4
	2,4,5-Tribromo biphenyl	115245-07-3
	2,2',4,5'-Tetrabromo biphenyl	60044-24-8
	3,3',4,4'-Tetrabromo biphenyl	77102-82-0
	2,2',4,5',6-Pentabromo biphenyl	59080-39-6
	2,2',4,4',5,5'-Hexabromo biphenyl	59080-40-9
	3,3',4,4',5,5'-Hexabromo biphenyl	60044-26-0
	Nonabromo biphenyl	27753-52-2
	(heptabromo biphenyl) 1,2,3,4,5-pentabromo-6-(2,3-dibromophenyl)benzene	35194-78-6
	2,2',3,4',5,6,6'-Heptabromo-1,1'-biphenyl	119264-58-3
	1,1'-Biphenyl, 2,2',3,3',4,5,5'-heptabromo-	82865-92-7
	Decabromo biphenyl	13654-09-6
	2,2',3,3',4,4',6,6'-Octabromo-1,1'-biphenyl	119264-59-4
	2,2',3,3',4,5',6,6'-octabromo-1,1'-biphenyl, 1,1'-Biphenyl	119264-60-7
	2,2',3,4,4',5,6,6'-Octabromo-1,1'-biphenyl	119264-61-8
Polybrominated-biphenyl ethers (PBDEs)	Polybrominated-biphenyl ethers (PBDEs)	N/A
	4-Bromo diphenyl ether	101-55-3
	4,4'-Dibromo diphenyl ether	2050-47-7
	1,2-dibromo-4-(2-bromophenoxy)benzene	49690-94-0
	2,2',4,4'-Tetrabromo diphenyl ether	5436-43-1
	2,2',4,4',5-Pentabromo diphenyl ether	60348-60-9
	2,2',4,4',6-Pentabromo diphenyl ether	189084-64-8
	2,2',4,4',5,5'-Hexabromo diphenyl ether	68631-49-2
	2,2',4,4',5,6'-Hexabromo diphenyl ether	207122-15-4
	2,2',3,4,4',5,6'-Heptabromo diphenyl ether	207122-16-5
	2,2',3,4,4',5,5',6'-Octabromo diphenyl ether	337513-72-1
	2,2',3,3',4,4',5,5',6'-Nonabromo diphenyl ether	63387-28-0
	Decabromo diphenyl ether	1163-19-5
Polychlorinated terphenyls (PCTs)	Polychlorinated terphenyls (PCTs)	N/A
	4-Chloro-p-terphenyl	1762-83-0
	2,5-Dichloro-p-terphenyl	61576-86-1
	2,5-Dichloro-o-terphenyl	61577-02-4
	2,4-Dichloro-p-terphenyl	61576-83-8
	2,4,6-Trichloro-p-terphenyl	57346-61-9
	2,4,4'',6-Tetrachloro-p-terphenyl	61576-97-4
	2,3,5,6-Tetrachloro-p-terphenyl	61576-99-6
	2,3,4,5,6-Pentachloro-p-terphenyl	61577-01-3
	Tetradecachloro-m-terphenyl	42429-89-0

## 6 - ATTACHMENTS (None)

## 7 - APPENDICES (None)

Mattel – Confidential Information  
3614 Flame Retardants



QSOP		3621 Restricted Substances			
		Number	Revision	Date	Assigned Author
		3621	12.00	2019-09-16	Ying Gao
	QUALITY SAFETY OPERATING PROCEDURE			FOR QUESTIONS CONTACT Ying Gao	
	Mattel Confidential Information   May Include Trade Secrets   Property of Mattel				

## 1 - SCOPE (3621)

### 1.1 - Products and Components Covered

All products and packages.

### 1.2 - Exemptions

#### 1.2.1 - Batteries

1.2.2 - Master Carton and non- reusable packaging materials not included in the individual product package

### 1.3 - Definitions (Words that are defined are ***italicized and bolded*** once per section)

**1.3.1 - Article (REACH):** An object that is given a special shape, surface or design during production which unambiguously determines its function to a greater degree than does its chemical composition. Fluids or particles, regardless of their shape or design, are not considered articles. For example, paint in a can, or ink in a pen, is not considered part of the article which contains it. See Significance for additional information on articles

**1.3.2 - Homogeneous Material:** A material that has uniform composition throughout, or, a material consisting of a combination of materials that cannot be mechanically disjointed into different materials. This means that the materials cannot be separated by mechanical actions such as unscrewing, cutting, crushing, grinding or abrasive processes.

**1.3.3 - Nanomaterial:** A material intentionally designed to have at least one dimension  $\leq 100$  nm.

**1.3.4 - Reusable Package:** Package intended to be retained with finished products.

**1.3.5 - Substances of Very High Concern (SVHC):** Substances identified by the European Chemicals Agency (ECHA) as a concern based on toxicity, persistence in the environment, or propensity to bioaccumulation.

### 1.4 - Purpose

To document product requirements for chemical legislation.

## 2 - PERFORMANCE REQUIREMENTS

2.1 - The chemicals in **Table 1** shall not be present in a ***homogeneous material*** at  $> 0.1\%$  w/w (1000 ppm).

**Table 1** - Restricted Substance List per §2.1

#	Substance	CAS No.
1	Anthracene	120-12-7
2	4,4'- Diaminodiphenylmethane	101-77-9
3	Dibutyl phthalate	84-74-2
4	Cobalt dichloride	7646-79-9

5	Diarsenic pentaoxide	1303-28-2
6	Diarsenic trioxide	1327-53-3
7	Sodium dichromate	7789-12-0 10588-01-9
8	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2
9	Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7
10	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (a-HBCDD, b-HBCDD, g-HBCDD)	25637-99-4 3194-55-6 (composed of 134237-51-7, 134237-50-6, and 134237-52-8)
11	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8
12	Bis(tributyltin)oxide	56-35-9
13	Lead hydrogen arsenate	7784-40-9
14	Triethyl arsenate	15606-95-8
15	Benzyl butyl phthalate	85-68-7
16	Anthracene oil	90640-80-5
17	Anthracene oil, anthracene paste, distn. Lights	91995-17-4
18	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2
19	Anthracene oil, anthracene-low	90640-82-7
20	Anthracene oil, anthracene paste	90640-81-6
21	Diisobutyl phthalate (DIBP)	84-69-5
22	2,4-Dinitrotoluene	121-14-2
23	Lead chromate	7758-97-6
24	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	12656-85-8
25	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2
26	Coal tar pitch, high temperature	65996-93-2
27	Tris(2-chloroethyl)phosphate (TCEP)	115-96-8
28	Aluminosilicate, Refractory Ceramic Fibres	Index number 650-017-00-8
29	Zirconia Aluminosilicate, Refractory Ceramic Fibres	Index number 650-017-00-8
30	Acrylamide	79-06-1
31	Trichloroethylene	79-01-6
32	Boric acid	10043-35-3 11113-50-1
33	Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3
34	Tetraboron disodium heptaoxide, hydrate	12267-73-1



35	Sodium chromate	7775-11-3
36	Potassium chromate	7789-00-6
37	Ammonium dichromate	7789-09-5
38	Potassium dichromate	7778-50-9
39	Cobalt(II) sulphate	10124-43-3
40	Cobalt(II) dinitrate	10141-05-6
41	Cobalt(II) carbonate	513-79-1
42	Cobalt(II) diacetate	71-48-7
43	2-Methoxyethanol	109-86-4
44	2-Ethoxyethanol	110-80-5
45	Chromium trioxide	1333-82-0
46	Acids and their oligomers generated when chromium trioxide is dissolved in water Chromic acid Dichromic acid Oligomers of chromic acid and dichromic acid	7738-94-5 13530-68-2 -
47	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6
48	2-ethoxyethylacetate	111-15-9
49	Strontium chromate	7789-06-2
50	1,2-Benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters (DHNUP)	68515-42-4
51	1-methyl-2-pyrrolidone	872-50-4
52	Hydrazine Hydrazine hydrate Hydrazine hydrate	302-01-2 7803-57-8 10217-52-4
53	1,2,3-trichloropropane	96-18-4
54	Lead styphnate	15245-44-0
55	Lead diazide, Lead azide	13424-46-9
56	Lead dipicrate	6477-64-1
57	Phenolphthalein	77-09-8
58	2,2'-Dichloro-4,4'-methylenedianiline	101-14-4
59	N,N-dimethylacetamide	127-19-5
60	Trilead diarsenate	3687-31-8
61	Calcium arsenate	7778-44-1
62	Arsenic acid	7778-39-4
63	Bis(2-methoxyethyl) ether	111-96-6
64	1,2-Dichloroethane	107-06-2

65	4-(1,1,3,3-Tetramethylbutyl)phenol; 4-tert-octyl phenol	140-66-9
66	2-Methoxyaniline; o-Anisidine	90-04-0
67	Bis(2-methoxyethyl) phthalate	117-82-8
68	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4
69	Pentazinc chromate octahydroxide	49663-84-5
70	Potassium hydroxyoctaoxodizincatedichromate	11103-86-9
71	Dichromium tris(chromate)	24613-89-6
72	1,2-bis(2-methoxyethoxy)ethane(TEGDME; triglyme)	112-49-2
73	1,2-dimethoxyethane;ethylene glycol dimethyl ether (EGDME)	110-71-4
74	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	561-41-1
75	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8
76	4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2, 5-dien-1-ylidene]dimethylammonium chloride (C.I. BasicViolet 3)	548-62-9
77	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2, 5-dien-1-ylidene]dimethyl ammonium chloride (C.I. Basic Blue 26)	2580-56-5
78	Diboron trioxide	1303-86-2
79	Formamide	75-12-7
80	Lead(II) bis(methanesulfonate)	17570-76-2
81	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1
82	$\alpha,\alpha$ -Bis[4-(dimethylamino)phenyl]-4(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	6786-83-0
83	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9
84	$\beta$ -TGIC (1,3,5-tris[(2S and 2R)- • Used as stabilizer for plastic. 2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	59653-74-6
85	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5
86	Pentacosafuorotridecanoic acid	72629-94-8
87	Tricosafuorododecanoic acid	307-55-1
88	Henicosafuoroundecanoic acid	2058-94-8
89	Heptacosafuorotetradecanoic acid	376-06-7
90	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3
91	Cyclohexane-1,2-dicarboxylic anhydride [1] cis-cyclohexane-1,2-dicarboxylic anhydride [2] trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible	85-42-7 13149-00-3 14166-21-3

	combinations of the cis- and trans-isomers [1] are covered by this entry].	
92	<p>Hexahydromethylphthalic anhydride [1],  Hexahydro-4-methylphthalic anhydride [2],  Hexahydro-1-methylphthalic anhydride [3],  Hexahydro-3-methylphthalic anhydride [4]  [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]</p>	25550-51-0 19438-60-9 48122-14-1 57110-29-9
93	<p>4-Nonylphenol, branched and linear  [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof] including CAS # 84852-15-3 / 25154-52-3.</p>	
94	<p>4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated  [covering well-defined substances and UVCB substances, polymers and homologues]</p>	
95	Methoxyacetic acid	625-45-6
96	N,N-dimethylformamide	68-12-2
97	Dibutyltin dichloride (DBTC)	683-18-1
98	Lead monoxide (Lead oxide)	1317-36-8
99	Orange lead (Lead tetroxide)	1314-41-6
100	Lead bis(tetrafluoroborate)	13814-96-5
101	Trilead bis(carbonate)dihydroxide	1319-46-6
102	Lead titanium trioxide	12060-00-3
103	Lead titanium zirconium oxide	12626-81-2
104	Silicic acid, lead salt	11120-22-2
105	<p>Silicic acid (H<sub>2</sub>SiO<sub>5</sub>), barium salt (1:1), lead-doped  [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]</p>	68784-75-8
106	1-bromopropane (n-propyl bromide)	106-94-5
107	Methyloxirane (Propylene oxide)	75-56-9
108	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0
109	Diisopentylphthalate (DIPP)	605-50-5
110	N-pentyl-isopentylphthalate	776297-69-9
111	1,2-diethoxyethane	629-14-1
112	Acetic acid, lead salt, basic	51404-69-4
113	Lead oxide sulfate	12036-76-9

114	[Phthalato(2-)]dioxotrilead	69011-06-9
115	Dioxobis(stearato)trilead	12578-12-0
116	Fatty acids, C16-18, lead salts	91031-62-8
117	Lead cyanamate	20837-86-9
118	Lead dinitrate	10099-74-8
119	Pentalead tetraoxide sulphate	12065-90-6
120	Pyrochlore, antimony lead yellow	8012-00-8
121	Sulfurous acid, lead salt, dibasic	62229-08-7
122	Tetraethyllead	78-00-2
123	Tetralead trioxide sulphate	12202-17-4
124	Trilead dioxide phosphonate	12141-20-7
125	Furan	110-00-9
126	Diethyl sulphate	64-67-5
127	Dimethyl sulphate	77-78-1
128	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2
129	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7
130	4,4'-methylenedi-o-toluidine	838-88-0
131	4,4'-oxydianiline and its salts	101-80-4
132	4-aminoazobenzene	60-09-3
133	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7
134	6-methoxy-m-toluidine (p-cresidine)	120-71-8
135	Biphenyl-4-ylamine	92-67-1
136	o-aminoazotoluene [(4-o-tolylazo-o-toluidine)]	97-56-3
137	o-toluidine	95-53-4
138	N-methylacetamide	79-16-3
139	4-Nonylphenol, branched and linear, ethoxylated [ substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well- defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof	--
140	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
141	Cadmium	7440-43-9
142	Cadmium oxide	1306-19-0
143	Dipentyl phthalate (DPP)	131-18-0
144	Pentadecafluorooctanoic acid (PFOA)	335-67-1
145	Cadmium sulphide	1306-23-6

146	Diethyl phthalate	84-75-3
147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0
148	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7
149	Imidazolidine-2-thione; 2-imidazoline-2-thiol	96-45-7
150	Lead di(acetate)	301-04-2
151	Triethyl phosphate	25155-23-1
152	Sodium perborate; perboric acid, sodium salt	EC Numbers: 239-172-9, 234-390-0
153	Sodium peroxometaborate	7632-04-4
154	Cadmium chloride	10108-64-2
155	1,2-Benzenedicarboxylic acid, diethyl ester, branched and linear	68515-50-4
156	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7
157	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1
158	reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	--
159	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1
160	Cadmium fluoride	7790-79-6
161	Cadmium sulphate	10124-36-4, 31119-53-6
162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of diethyl phthalate (EC No. 201-559-5)	68515-51-5, 68648-93-1
163	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	--
164	Nitrobenzene	98-95-3
165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3
167	1,3-propanesultone	1120-71-4
168	Perfluorononane-1-oic acid and its sodium and ammonium salts	375-95-1, 21049-39-8, 4149-60-4
169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8

170	4,4'-isopropylidenediphenol (BPA)	80-05-7
171	4- Heptylphenol, branched and linear	1987-50-4, 6465-71-0, 72624-02-3, 6465-74-3, 6863-24-7, 1824346-00-0, 1139800-98-8, 911371-07-8, 911371-06-7, 911370-98-4, 861011-60-1, 861010-65-3, 857629-71-1, 854904-93-1, 854904-92-0, 102570-52-5, 100532-36-3, 72861-06-4, 71945-81-8, 37872-24-5, 33104-11-9, 30784-32-8, 30784-31-7, 30784-27-1, 288864-02-8
172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	335-76-2 , 3108-42-7 , 3830-45-3
173	P-(1,1-dimethylpropyl)phenol	80-46-6
174	Perfluorohexane-1-sulphonic acid and its salts (PFHxS )	355-46-4, 3871-99-6, 55120-77-9, 68259-08-5, 70225-16-0, 82382-12-5
175	Chrysene	218-01-9
176	Benz[a]anthracene	56-55-3
177	Cadmium nitrate	10325-94-7, 10022-68-1
178	Cadmium carbonate	513-78-0
179	Cadmium hydroxide	21041-95-2
180	Tricobalt tetraoxide containing ≥ 0.1% w/w nickel oxides	1308-06-1
181	Dechlorane plus (including any of its individual anti- and syn-isomers or any combination thereof)	13560-89-9, 135821-74-8, 135821-03-3
182	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	1072-71-5, 50-00-0, 1987-50-4
183	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride)	552-30-7
184	Dicyclohexyl Phthalate (DCHP)	84-61-7
185	Octamethylcyclotetrasiloxane (D4)	556-67-2
186	Decamethylcyclopentasiloxane (D5)	541-02-6
187	Dodecamethylcyclohexasiloxane (D6)	540-97-6
188	Disodium octaborate	12008-41-2
189	Benzo[ghi]perylene	191-24-2
190	Terphenyl hydrogenated	61788-32-7
191	Ethylenediamine (EDA)	107-15-3
192	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6
193	Benzo[k]fluoranthene	207-08-9
194	Fluoranthene	206-44-0; 93951-69-0

195	Phenanthrene	85-01-8
196	Pyrene	129-00-0; 1718-52-1
197	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one	15087-24-8
198	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propanoic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof)	62037-80-3; 13252-13-6; 67118-55-2; 2062-98-8; 122499-17-6; 75579-39-4; 75579-40-7
199	2-methoxyethyl acetate	110-49-6
200	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with $\geq$ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	26523-78-4; 3050-88-2; 31631-13-7; 106599-06-8
201	4-tert-butylphenol	98-54-4

**2.2** - The chemicals in **Table 2** shall not be present in materials of an article in excess of the specified limit:

**Table 2** - Restricted Substance List per §2.2

No.	Substance	CAS No.	Limit
1	Benzene	71-43-2	0.0005% (w/w)
2	Organostannic compounds (e.g., tributyltin compounds (TBT), triphenyltin (TPT) compounds, dibutyltin (DBT) compounds, dioctyltin (DOT) compounds etc.)	N/A	0.1%(w/w) by weight of tin
3	Triclosan	3380-34-5	0.0005% (w/w)
4	Dimethyl Fumarate (DMFu)	624-49-7	0.1 mg/kg (w/w)
5	Polychlorinated Biphenyls (PCB)	1336-36-3 and others	0.005% (w/w)
6	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	0.005% (w/w)
7	Formamide	75-12-7	0.02% (w/w)
8	Dimethyl phthalate (DMP)	131-11-3	0.1% (w/w)
9	Diethyl phthalate (DEP)	84-66-2	0.1% (w/w)

**2.2.1** - Polycyclic aromatic hydrocarbons (PAH) listed in **Table 3** shall not be present in the accessible plastic and rubber parts of toys in excess of the specified limit:

**Table 3** - PAH Restriction

No.	Substance	CAS No.	Limit
1	Benzo[a]pyrene (BaP)	50-32-8	0.5 (mg/kg)
2	Benzo[e]pyrene (BeP)	192-97-2	0.5 (mg/kg)
3	Benzo[a]anthracene (BaA)	56-55-3	0.5 (mg/kg)
4	Chrysen (CHR)	218-01-9	0.5 (mg/kg)
5	Benzo[b]fluoranthene (BbFA)	205-99-2	0.5 (mg/kg)

6	Benzo[j]fluoranthene (BjFA)	205-82-3	0.5 (mg/kg)
7	Benzo[k]fluoranthene (BkFA)	207-08-9	0.5 (mg/kg)
8	Dibenzo[a,h]anthracene (DBAhA)	53-70-3	0.5 (mg/kg)

**2.3** - The allergenic fragrances in **Table 4** shall not be present in a product. However, the presence of traces of these fragrances is allowed provided that such presence is technically unavoidable under good manufacturing practice and does not exceed 100 mg/Kg.

**Table 4** - Restricted Fragrance List per §2.3

Substance	CAS No.
Alanroot oil (Inula helenium)	97676-35-2
Allylthiocyanate	57-06-7
Benzyl cyanide	140-29-4
4 tert-Butylphenol	98-54-4
Chenopodium oil	8006-99-3
Cyclamen alcohol	4756-19-8
Diethyl maleate	141-05-9
Dihydrocoumarin	119-84-6
2,4-Dihydroxy-3-methylbenzaldehyde	6248-20-0
3,7-Dimethyl-2-octen-1-ol (6,7-Dihydrogeraniol)	40607-48-5
4,6-Dimethyl-8-tert-butylcoumarin	17874-34-9
Dimethyl citraconate	617-54-9
7,11-Dimethyl-4.6,10-dodecatrien-3-one	26651-96-7
6,10-Dimethyl-3.5,9-undecatrien-2-one	141-10-6
Diphenylamine	122-39-4
Ethyl acrylate	140-88-5
Fig leaf, fresh and preparations	68916-52-9
trans-2-Heptenal	18829-55-5
trans-2-Hexenal diethyl acetal	67746-30-9
trans-2-Hexenal dimethyl acetal	18318-83-7
Hydroabietyl alcohol	13393-93-6
4-Ethoxy-phenol	622-62-8
6-Isopropyl-2-decahydronaphthalenol	34131-99-2
7-Methoxycoumarin	531-59-9
4-Methoxyphenol	150-76-5
4-(p-Methoxyphenyl)-3-butene-2-one	943-88-4
1-(p-Methoxyphenyl)-1-penten-3-one	104-27-8



Methyl trans-2-butenolate	623-43-8
6-Methylcoumarin	92-48-8
7-Methylcoumarin	2445-83-2
5-Methyl-2,3-hexanedione	13706-86-0
Costus root oil (Saussurea lappa Clarke)	8023-88-9
7-Ethoxy-4-methylcoumarin	87-05-8
Hexahydrocoumarin	700-82-3
Peru balsam, crude (Exudation of Myroxylon pereirae (Royle) Klotzsch)	8007-00-9
2-Pentylidene-cyclohexanone	25677-40-1
3,6,10-Trimethyl-3,5,9-undecatrien-2-one	1117-41-5
Verbena oil (Lippia citriodora Kunth)	8024-12-2
Musk ambrette (4-tert-Butyl-3-methoxy-2,6-dinitrotoluene)	83-66-9
4-Phenyl-3-buten-2-one	122-57-6
Amyl cinnamal	122-40-7
Amylcinnamyl alcohol	101-85-9
Benzyl alcohol	100-51-6
Benzyl salicylate	118-58-1
Cinnamyl alcohol	104-54-1
Cinnamal	104-55-2
Citral	5392-40-5
Coumarin	91-64-5
Eugenol	97-53-0
Geraniol	106-24-1
Hydroxy-citronellal	107-75-5
Hydroxy-methylpentylcyclohexenecarboxaldehyde	31906-04-4
Isoeugenol	97-54-1
Oakmoss extracts	90028-68-5
Treemoss extracts	90028-67-4
Anisyl alcohol	105-13-5
Benzyl benzoate	120-51-4
Benzyl cinnamate	103-41-3
Citronellol	106-22-9
Farnesol	4602-84-0
Hexyl cinnamaldehyde	101-86-0

Lilial	80-54-6
d-Limonene	5989-27-5
Linalool	78-70-6
Methyl heptine carbonate	111-12-6
3-methyl-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one	127-51-5

**2.4** - The chemicals in **Table 5** and all other reportable Chemicals of High Concern to Children (CHCC) specified by the State of Washington's Children's Safe Product Act cannot be used in any accessible materials of children's products and reusable packages. This requirement does not apply to inaccessible materials, packaging intended to be discarded, materials/components intended for adults exclusively, and the products listed in **Appendix 1**. This requirement does not apply to Polyester/PET with antimony trioxide used as a catalyst.

Note: There are 23 CHCCs listed in **Table 5**. These substances are specially listed because they have been used in Mattel products in the last three years. In addition to these 23 substances, approximately 1300 additional substances specified as CHCCs by the State of Washington's Children's Safe Product Act have not been present in Mattel products.

**Table 5** - Substances to be Phased Out

No.	Substance Name	CAS No.
1	C.I. Yellow 14	842-07-9
2	Antimony Trioxide	1309-64-4
3	C.I. Red 114	6459-94-5
4	2,4-Diaminotoluene	95-80-7
5	Nonylphenol	25154-52-3
6	Cobalt Chloride	7646-79-9
7	Cobalt Nitrate	10141-05-6
8	3,3'-Dimethoxybenzidine	119-90-4
9	Ethyl Paraben	120-47-8
10	Butyl Paraben	94-26-8
11	Propyl Paraben	94-13-3
12	Methyl Paraben	99-76-3
13	Cobaltate(1-), bis(2,4-dihydro-4-((2-hydroxy-5-nitrophenyl)azo)-5-methyl-2-phenyl-3H-pyrazol-3-onato(2-))- , sodium	71839-88-8
14	Pigment Red 81	12224-98-5
15	Cobalt isocaprylate	136-52-7
16	Acid Yellow 220 (Tetrasodium bis[2-[[[3-[[1-[(2-chloroanilino)carbonyl]-2-oxopropyl]azo]-4-hydroxyphenyl]sulphonyl]amino]benzoato(3-)]cobaltate(4-))	70851-34-2
17	Xanthylum, 9-(2-carboxyphenyl)-3,6-bis(diethylamino)-, bis[3-[2-	71566-55-7

	[4,5-dihydro-3-methyl-5-(oxo-.kappa.O)-1-phenyl-1H-pyrazol-4-yl]diazenyl-.kappa.N1]-4-(hydroxy-.kappa.O)-)-N-[3-(1-methylethoxy)propyl] benzenesulfonamindato(2-)]cobaltate (1-)	
18	C. I. Reactive Black 8	12225-26-2
19	Cobalt (II) Nitrate Hexahydrate	10026-22-9
20	Cobalt Blue	1345-16-0
21	Cadmium sulfide	1306-23-6
22	C.I pigment violet 1	1326-03-0
23	Hexanoic acid,2-ethyl-, cobalt salt	13586-82-8

**2.5** - CPSC has begun the rule making to ban the organohalogen flame retardants. **Table 6** lists 6 of flame retardants. The two organotin compounds are restricted for electronics per IEC 62474. Organotin families are also restricted by EU REACH Annex XVII. These chemicals cannot be used in both accessible and inaccessible materials of children's products and reusable packages. This requirement does not apply to packages intended to be discarded.

Note: There are 6 flame retardants listed in **Table 6**, These substances are specially listed because they have been used in Mattel products in the last year. In addition to these 6 substances, approximately 19 additional flame retardant substances referred by CPSC have not been present in Mattel products.

**Table 6** - Substance to be phased out in 2018 and 2019

No.	Substance Name	CAS No.
1	Tetrabromobisphenol A(TBBPA)	79-94-7
2	Triphenyl phosphate (TPP)	115-86-6
3	Tris(2-butoxyethyl) phosphate (TBEP)	78-51-3
4	Tris(2-ethylhexyl) phosphate (TEHP)	78-42-2
5	Decabromodiphenylethane (DBDPE)	84852-53-9
6	Tributyl phosphate (TBP)	126-73-8
7	Dibutyltin dilaurate	77-58-7
8	Dioctyltin oxide	870-08-6
9	TBBPA carbonate oligomer BC58	71342-77-3

**2.6** - PVC is not allowed to be used in packaging materials intended to be discarded.

**2.7** - In addition, chemicals banned in the following regulations shall not be present in any products exceeding the specified limits. Otherwise, list out the substance and concentration in the DOC template

**2.7.1** - Chemicals banned in the following regulations shall not be present in a Homogeneous material of accessible parts of any products exceeding the specified limits. Otherwise, list out the substance and concentration in the DOC template.

**2.7.1.1** - Substance classified as Carcinogenic, Mutagenic or Repro-toxic (CMR) of category 1A, 1B or 2, in accordance with [Regulation \(EC\) 1272/2008 on classification, labeling and packaging of substances and mixtures \(CLP\)](#) and the following amendments.

**2.7.1.2** - Chemicals applicable to children's products in [Annex XVII of Regulations \(EC\) No 1907/2006 \(REACH\) and the amendments](#).

**2.7.1.3** - [Chemicals of High Concern to Children\(CHCC\)](#) with reference to Washington State's Children's Safe Product Act.

**2.7.1.4** - [Proposition 65 Listed Chemicals](#) Chemicals with reference to California Safe Drinking Water and Toxic Enforcement Act.

**2.7.1.5** - Persistent Organic Pollutants (POP) in annex I of [COMMISSION REGULATION \(EU\) No 757/2010 of 24 August 2010](#) amending Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants as regards Annexes I and III.

**2.7.1.6** - Chemicals banned in the Appendix C of Annex II of EU Toy Safety Directive (TSD) shall not be used in toys for children less than 36 months or others toys intended to be placed in the mouth.

**2.7.2** - Chemicals restricted in the following regulations shall not be present in a homogeneous material of inaccessible parts of any products exceeding the specified limits. Otherwise, list out the substance and concentration in the DOC template.

**2.7.2.1** - [Chemicals of High Concern to Children\(CHCC\)](#) with reference to Washington State's Children's Safe Product Act.and Oregon Senate Bill 478

**2.7.3** - Chemicals restricted in the following regulations shall not be present in a Homogeneous material of inaccessible parts and packaging materials of any products exceeding the specified limits. Otherwise, list out the substance and concentration in the DOC template.

**2.7.3.1** - Persistent Organic Pollutants (POP) in annex I of [Regulation \(EU\) 2019/1021](#) of the European Parliament and the council of 20 June 2019 on persistent organic pollutants.

**2.7.4** - Phthalates restricted in the following regulation shall not present in the plasticized packaging materials in a concentration equal to or greater than the limit.

**2.7.4.1** - Regulation EU 2018/2005 amendment entry 51 of Annex XVII of REACH

**2.7.5** - The latest edition/version of the standards/regulations (including any amendments) should be applied.

**2.7.6** - It is not necessary to declare any volatile solvents that are not expected to be present in the finished products. It is not necessary to declare any residual monomers in polymers.

**2.8** - A Declaration of Compliance must be obtained from each supplier certifying compliance with §2.1, §2.2, §2.4, §2.5, and §2.6. Otherwise, the article must be tested for compliance.

**2.8.1** - The Declaration of Compliance form can be found in [GQMP 2252, Bill of Substances](#) when substances are exceeding the limits and need declaration.

**2.9** - A Fragrance Certification certifying compliance with §2.3 must be obtained for each supplier with fragrance; otherwise, the fragrance must be tested for compliance

**2.9.1** - The Fragrance Certification template can be found in **§6.1 (Attachment)**.

**2.10** - **Nanomaterials** must be subjected to a safety evaluation and may not be used without approval from a GQ&RC, Senior Director.

### 3 - PROCEDURE

**3.1** - **Environment** (N/A)

**3.2** - **Equipment** (N/A)

### 3.3 - General Requirements

**3.3.1** - Any homogeneous material containing an SVHC with a concentration > 0.1% is to be considered a failure to this standard operating procedure. Any failure should be reported to the Regulations Group for analysis. The Regulations group will determine what portion of the toy is to be considered an article. After this determination, if may be appropriate to calculate a new concentration and make a new determination as to the compliance of the product.

### 3.4 - Method (N/A)

## 4 - DOCUMENT HISTORY AND SUPPORTING INFORMATION

### 4.1 - Significance

#### R.E.A.C.H.

REACH places requirements on articles that contain more than 0.1% by weight of any chemical listed as a Substance of Very High Concern (SVHC). It is Mattel's policy that no article produced by Mattel will surpass the 0.1% level. While the definition of an article is given in the definitions section of this QSOP, determining whether the whole toy or only a portion of the toy (component or sub-assembly) meets the definition of an article can be difficult. Therefore, until greater definition is given by the European Court of Justice, SVHCs are being regulated at the homogeneous material level.

If the product does not contain a homogeneous material with an SVHC at a concentration of 1000 ppm or higher, then the product automatically complies with the REACH SVHC requirement.

If the limit is exceeded at the homogeneous material level, the Regulations Group will determine what portion of the toy is considered an article and calculate the concentration of the SVHC in the article to determine compliance. The same process will be used for packaging and packaging components.

Annex XVII of the REACH regulation places requirements on the marketing and use of certain substances and mixtures in articles. The Annex provides guidance on the restrictions per substance.

#### Nanomaterials

The use of technology that allows scientists to create, explore, and manipulate materials measured in very small nanometer (nm) scale is known as nanotechnology. A nanometer scale for comparative purpose is one billionth of a meter or 1/80,000 the width of a human hair.

Nanotechnology is a range of new technologies that aim to manipulate individual atoms and molecules in order to create new products and processes from computers that fit on the head of a pin or structures that are built from the bottom up one atom at a time. The materials made from nanotechnology are called nanomaterials.

Nanomaterials can have chemical, physical, and biological properties that differ from those of their larger counterparts. They are primarily developed to exhibit novel characteristics such as increased strength, increased chemical reactivity, or increased conductivity compared to the same non-nanomaterial.

There have been a number of recent concerns raised related to the potential toxicity and health risks of the means and effects of nanomaterial transfer, absorption, inhalation, or ingestion.

A number of international regulatory agencies are also looking to regulate and restrict the use of nanomaterials in cosmetics, food and consumer products. For example in the United States – FDA, NIOSH, EPA Toxic Substances Control Act (TSCA); in Canada – Canadian Environmental Protection Act (CEPA); the European Union – Cosmetics Regulations, REACH, Novel Foods Regulations. The use of nanomaterials is certainly becoming a big priority in the policy agendas of many countries.

#### Antimicrobial Agents

Triclosan, an antimicrobial ingredient in hundreds of consumer products from soaps to deodorant is being scrutinized

by the US government (FDA) and the European Union. There are also many health concerns related to use of triclosan.

### Allergenic Fragrances

Allergenic Fragrance Substances are no longer allowed to be used in the toys according the Toy Safety Directive (2009/48/EC)

## 4.2 - Reason for Revision (3621)

Section	Revision 12.00	Implementation
2.1	Added one new SVHC.	Applies to all products manufactured on or after: <b>January 1, 2020</b>
2.7	Updated CMR categories and hyperlinks of source documents.	Editorial
2.7.3.1	Updated the POP regulations to the new revision - <a href="#">Regulation (EU) 2019/1021</a>	Applies for the products manufactured on or after: <b>January 15, 2020</b>

Section	Revision 11.00	Implementation
2.1	Adds six new SVHCs	Applies to all products manufactured on or after: <b>July 1, 2019</b>
2.7.4	Adds phthalates requirement on the plasticized packaging materials per EU 2018/2005	Applies to all products manufactured on or after: <b>July 1, 2019</b>

## 4.3 - Referenced Documents

The following link contains the source documents and requirements related to this procedure:

[Detailed Procedure to Source Document Report](#)

## 4.4 - Identification of Mattel Internal Requirements

Mattel internal requirements are requirements developed internally to minimize the potential for injuries to children but are not required by law.

The following table identifies the Mattel internal requirements in this document.

Section	Requirement Note
<a href="#">2.1</a>	According to the EU REACH regulation, directly after a substance is declared a Substance of Very High Concern (SVHC), suppliers of articles which contain such a substance in a concentration above 0.1% (weight by weight) have to provide enough information to allow the safe use of the article by the recipients of the article. In this case, recipients are generally retailers but not consumers. At a minimum the name of the substance in question has to be communicated. As no retailers or distributors in EU expect to receive such SVHC usage communication on a children's product, Mattel internally set up this SVHC restriction requirement to avoid this de facto ban.. In addition, any consumer inquiries about SVHCs must be answered by the manufacturer within 45 days, free of charge. It is not a regulatory ban, but a duty on information communication which effectively bans the sale of these products.
<a href="#">2.4</a>	Washington, Vermont, and Oregon require annually or biannually reporting on the usage of Chemical of High Concerns to Children (CHCC). Oregon will ban all CHCCs in 2022. Mattel takes a proactive approach to phase out all CHCCs.
<a href="#">2.10</a>	See Section 4.1 Significance

## 5 - FREQUENTLY ASKED QUESTIONS (None)

## 6 - ATTACHMENTS

### 6.1 - Fragrance Certificate


[Fragrance Certificate](#)

## 7 - APPENDICES

### 7.1 - Appendix 1 - Exemptions from the requirements in §2.4.

- (i) batteries;
- (ii) snow sporting equipment, including skis, poles, boots, snow boards, sleds, and bindings;
- (iii) consumer electronic products, including personal computers, audio and video equipment, calculators, wireless telephones, game consoles, and hand-held devices incorporating a video screen used to access interactive software intended for leisure and entertainment and their associated peripherals.
- (iv) Interactive software, intended for leisure and entertainment, such as computer games, and their storage media, such as compact discs.

**Mattel – Confidential Information**  
3621 Restricted Substances

	TITLE			
	3622 Residual Monomers			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	3622	2.00	2018-12-13	Ying Gao
<b>QUALITY AND SAFETY OPERATING PROCEDURE</b>  <b>Mattel – Confidential Information</b>				<b>FOR QUESTIONS CONTACT</b>  Ying Gao

## 1 - SCOPE (3622)

### 1.1 - Products and Components Covered

**1.1.1 - Polymers** in **Table 1** used in **accessible** parts of the following components of all products, including **promotional items** and packaging intended to remain with the product.

**1.1.1.1** - Plastic parts

**1.1.1.2** - Glues/adhesives

**1.1.1.3** - Synthetic rubber

**1.1.1.4** - Foamed plastics

**1.1.1.5** - **Surface coatings**

**1.1.1.6** - Inks

### 1.2 - Exemptions

**1.2.1** - Packaging materials intended to be discarded

**1.2.2** - Inaccessible materials in products, accessories, or peripherals intended to be used exclusively by adults.

### 1.3 - Definitions (Words that are defined are **italicized and bolded** once per section)

**1.3.1 - Accessible:** Any area of the product that can be contacted by any portion forward of the collar of the accessibility probes when inserted to the depth determined in [QSOP 3010, Accessibility](#).

**1.3.2 - Monomer:** A molecule that may bind chemically to other molecules to form a **polymer**.

**1.3.3 - Polymer:** A large molecule (macromolecule) composed of repeating structural units, **monomers**. These sub-units are typically connected by chemical bonds. There also known as plastics or resins

**1.3.4 - Promotional Items:** Items provided to the consumer to promote a product or brand. These items may or may not be included in, or with, a product. Examples include items such as booklets, catalogs, bookmarks, growth charts, and posters. In some instances, a promotional item may be an actual product in package that is given away.

**1.3.5 - Surface Coating:** All layers of materials such as paint or similar, that dries to a solid film when it is applied to a surface and that can be scraped off with a sharp blade or washed off with a solvent such as acetone or ethanol, without removing substrate (base) material.

### 1.4 - Purpose

To document products requirements for monomer residues in polymers.

## 2 - PERFORMANCE REQUIREMENTS

**2.1 - The monomers in Table 1 shall not be present in polymers in accessible parts of a finished product.**



The presence of traces of these monomers is allowed provided that such presence is technically unavoidable under good manufacturing practice to minimize the residue of the monomers. The relevant manufacturing practices (or equivalent) listed below shall be applied:

- Strict formulation control on the addition of monomers and solvents.
- Devolatilization system where the materials are subjected to increased temperature and vacuum in order to remove most unreacted monomer and solvent.
- Periodic volatile content inspection.
- The residual contents in the final products are verified in quality control process via proper analytical methods

**Table 1** - The restricted monomers in the polymers per §2.1

No.	Polymer	Monomer	CAS No.
1	ABS (Acrylonitrile-Butadiene-Styrene)	Ethyl benzene	100-41-4
		Styrene	100-42-5
		Acrylonitrile	107-13-1
2	HIPS (High Impact Polystyrene)	Ethyl benzene	100-41-4
		Styrene	100-42-5
3	Polystyrene	Ethyl benzene	100-41-4
		Styrene	100-42-5
4	K-Resin	Ethyl benzene	100-41-4
		Styrene	100-42-5
5	Acetal (POM, polyoxymethylene)	Formaldehyde	50-00-0
6	MABS (methyl methacrylate acrylonitrile butadiene styrene)	Ethyl benzene	100-41-4
		Styrene	100-42-5
		Acrylonitrile	107-13-1
7	TPE (Thermoplastic Elastomers)	Ethyl benzene	100-41-4
		Styrene	100-42-5
9	PVC (polyvinylchloride)	Vinyl Chloride	75-01-4
10	Polycarbonate	Bisphenol A	80-05-7
11	Epoxy resin	Bisphenol A	80-05-7

**2.2 - A Declaration of Compliance certifying compliance with §2.1 must be obtained from each supplier who provides materials based on the polymers listed in the Table 1.**

**2.2.1** - The Declaration of Compliance form can be found in **Appendix 3** of [GQMP 2115](#), Supplier Certification Process.

### 3 - PROCEDURE

**3.1 - Environment** (N/A)

**3.2 - Equipment** (N/A)

**3.3 - General Requirements** (N/A)

**3.4 - Method** (N/A)

### 4 - DOCUMENT HISTORY AND SUPPORTING INFORMATION

#### 4.1 - Significance

**4.1.1** - The Washington State Children's Safe Product Act (WAC 173-334) requires reporting of any Chemicals of High Concern to Children (CHCC) present in any children's product sold in the State of Washington. Some of these CHCC are known as residual **monomers**. This procedure puts strict controls on the presence of these residual monomers in the **polymers** Mattel is using in its products.

#### 4.2 - Reason For Revision (3622)

Section	Revision 2.00	Implementation
4	Revised title of section.	Editorial
4.3	Updated section to remove previous references and replace with a hyperlink to a Detailed Procedure to Source Document report in Polarion.	Editorial
4.4	Added section to identify any Mattel internal requirements contained in this procedure.	Editorial

Section	Revision 1.00	Implementation
All	Uploaded document into Polarion	Editorial

### 4.3 - Referenced Documents

The following link contains the source documents and requirements related to this procedure:

[Detailed Procedure to Source Document Report](#)

### 4.4 - Identification of Mattel Internal Requirements

Mattel internal requirements are requirements developed internally to minimize the potential for injuries to children but are not required by law.


**4.4.1** - All requirements in this QSOP are based on regulations. This QSOP contains no Mattel internal requirements.

## 5 - FREQUENTLY ASKED QUESTIONS (None)

## 6 - ATTACHMENTS (None)

## 7 - APPENDICES (None)

**Mattel – Confidential Information**  
3622 Residual Monomers

	TITLE			
	5020 Environmental Substances that Deplete the Ozone Layer			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	5020	2.00	2019-02-05	Jessie Reyes
<b>QUALITY AND SAFETY OPERATING PROCEDURE</b> <b>Mattel – Confidential Information</b>				<b>FOR QUESTIONS CONTACT</b> Jessie Reyes

## 1 - SCOPE (5020)

### 1.1 - Products and Components Covered

1.1.1 - All products and components

### 1.2 - Exemptions (None)

### 1.3 - Definitions (Words that are defined are *italicized and bolded* once per section)

**1.3.1 - Ozone Depletion Potential:** A factor established to reflect the ozone-depletion potential of a substance, on a mass per kilogram basis, as compared to chlorofluorocarbon-11 (CFC-11). The factor is based upon the substance's atmospheric lifetime, the molecular weight of bromine and chlorine, the substance's ability to be photolytically disassociated, and upon other factors determined to be an accurate measure of relative ozone depletion potential.

**1.3.2 - Ozone Depleting Substances:** (ODS) are defined as two classes;

**Class I:** Chemicals that cause or contribute significantly to the depletion of the ozone layer including all chemicals that have an ***ozone depletion potential*** of 0.2 or greater. Chemicals included are chlorofluorocarbons (CFC's), halons, carbon tetrachloride, methyl chloroform, methyl bromide, and hydrobromofluorocarbons (HBFC's).

**Class II:** Chemicals that are known, or reasonably anticipated to cause or contribute to the depletion of the ozone layer. Chemicals included are hydrochlorofluorocarbons (HCFC's).

### 1.4 - Purpose

1.4.1 - The intention of these requirements is to eliminate ozone depleting substances that may occur in products or their manufacture (see §5).

## 2 - PERFORMANCE REQUIREMENTS

### 2.1 - Class I ODS's

2.1.1 - All products and product components sold to Mattel, Inc., its subsidiaries, and their respective vendors must not contain, or must not be manufactured using the Class I ODS's found in **Appendix A**.

### 2.2 - Class II ODS's

2.2.1 - Aerosol products, other pressurized dispensers, and plastic foam products sold to Mattel, Inc., its subsidiaries, and their respective vendors must not contain, or must not be manufactured using the Class II ODS's found in **Appendix B**.

### 2.3 - Manufacture and Product Certification

2.3.1 - The manufacturer, subcontractor, supplier or vendor of Mattel shall certify that all product or components sold to Mattel are in compliance with the requirements stated in §2.1 and §2.2.

Option A or B satisfies this requirement:

**Option A:** An authorized official of the manufacturer, subcontractor, supplier or vendor signs the attached Manufacture and Product Certification form and submits a copy to the purchaser (e.g., Mattel manufacturing plant). The manufacturer, subcontractor, supplier or vendor shall retain the certificate and the purchaser shall

retain copies.

**Option B:** A manufacturer, subcontractor, supplier or vendor who has a recognized standing in the industry for high quality materials and a worldwide reputation as a leading supplier, e.g., Merck, Ciba-Geigy, Sherwin Williams, BASF, and DuPont, may submit their company's certificate of conformity stating compliance with §2.1 and §2.2 to the purchaser (e.g., Mattel manufacturing plant). The purchaser shall retain copies of the certificate of conformity.

## 2.4 - Non-CFC Clause on Purchase Order Form

**2.4.1** - The following clause assuring non-use of ODS's must be clearly visible on the Purchase Order's (PO) Terms and Conditions document used with all subcontractors, suppliers, and vendors.

"Not contain or be manufactured using ozone depleting substances"

## 3 - PROCEDURE

### 3.1 - Environment (N/A)

### 3.2 - Equipment (N/A)

### 3.3 - General Requirements (N/A)

### 3.4 - Method (N/A)

## 4 - DOCUMENT HISTORY AND SUPPORTING INFORMATION

### 4.1 - Significance (None)

### 4.2 - Reason for Revision (5020)

Section	Revision 2.00	Implementation
4	Revised title of section.	Editorial
4.3	Updated section to remove previous references and replaced with a hyperlink to a Detailed Procedure to Source Document report in Polarion.	Editorial
4.4	Added section to identify any Mattel internal requirements contained in this procedure.	Editorial

Section	Revision 1.00	Implementation
All	Uploaded document to Polarion	Editorial
All	Minor editorial updates.	Editorial

### 4.3 - Referenced Documents

The following link contains the source documents and requirements related to this procedure:

[Detailed Procedure to Source Document Report](#)

### 4.4 - Identification of Mattel Internal Requirements

Mattel internal requirements are requirements developed internally to minimize the potential for injuries to children but are not required by law.

**4.4.1** - All requirements in this QSOP are based on regulations. This QSOP contains no Mattel internal requirements.

## 5 - FREQUENTLY ASKED QUESTIONS

### 5.1 - Question 1

**Question:** Some of the vendors strikeout the following phrase: ~~or were not manufactured using~~. Their argument is

that Ozone depleting substances like CFC and HCFC are not used in the product (are not part of the raw materials), however, they may be present in equipment used at manufacturing areas such as air conditioners, chillers, box refrigerator, etc. and per the text in the Certificate Letter, it seems these substances are banned also from production or manufacturing areas even if they are not having direct contact with the product but may be part of the manufacturing facilities.

**Answer:** The requirements apply to the product itself (raw materials) and to anything used as part of the manufacturing process such as mold releases, lubricants, and cleaners. The requirements do not apply to an air conditioner in an office or a refrigerator in a break room in the manufacturing facility.

## 6 - ATTACHMENTS (None)

## 7 - APPENDICES

### 7.1 - Appendix A - Names of Class I Ozone-Depleting Substances

CFC-11 (CFC <sub>13</sub> ) Trichlorofluoromethane	CFC - 112 (C <sub>2</sub> F <sub>2</sub> C <sub>14</sub> ) Tetrachlorodifluoroethane
CFC-12 (CF <sub>2</sub> C <sub>12</sub> ) Dichlorodifluoromethane	CFC - 211 (C <sub>3</sub> FC <sub>17</sub> ) Heptachlorofluoropropane
CFC-113 (C <sub>2</sub> F <sub>3</sub> C <sub>13</sub> ) Trichlorotrifluoroethane	CFC - 212 (C <sub>3</sub> F <sub>2</sub> C <sub>16</sub> ) Hexachlorodifluoropropane
CFC-114 (C <sub>2</sub> F <sub>4</sub> C <sub>12</sub> ) Dichlorotetrafluoroethane	CFC - 213 (C <sub>3</sub> F <sub>3</sub> C <sub>15</sub> ) Pentachlorotrifluoropropane
CFC-115 (C <sub>2</sub> F <sub>5</sub> C <sub>1</sub> ) Monochloropentafluoroethane	CFC - 214 (C <sub>3</sub> F <sub>4</sub> C <sub>14</sub> ) Tetrachlorotetrafluoropropane
Halon - 1211 (CF <sub>2</sub> C <sub>1</sub> Br) Bromochlorodifluoromethane	CFC - 215 (C <sub>3</sub> F <sub>3</sub> C <sub>13</sub> ) Trichloropentafluoropropane
Halon - 1301 (CF <sub>3</sub> Br) Bromotrifluoromethane	CFC - 216 (C <sub>3</sub> F <sub>6</sub> C <sub>12</sub> ) Dichlorohexafluoropropane
Halon - 2402 (C <sub>2</sub> F <sub>4</sub> Br <sub>2</sub> ) Dibromotetrafluoroethane	CFC - 217 (C <sub>3</sub> F <sub>7</sub> C <sub>1</sub> ) Monochloroheptafluoropropane
CFC -13 (CF <sub>3</sub> C <sub>1</sub> ) Chlorotrifluoromethane	CC <sub>14</sub> Carbon Tetrachloride
CFC - 111 (C <sub>2</sub> FC <sub>15</sub> ) Pentachlorofluoroethane	Methyl Chloroform (C <sub>2</sub> H <sub>3</sub> C <sub>13</sub> ) 1,1,1 Trichloroethane

### 7.2 - Appendix B - Names of Class II Ozone-Depleting Substances

HCFC - 21 (CHFC <sub>12</sub> ) Dichlorofluoromethane	HCFC - 221 (C <sub>3</sub> HFC <sub>16</sub> ) Hexachlorofluoropropane
HCFC - 22 (CHF <sub>2</sub> C <sub>1</sub> ) Monochlorodifluoromethane	HCFC - 222 (C <sub>3</sub> HF <sub>2</sub> C <sub>15</sub> ) Pentachlorodifluoropropane
HCFC - 31 (CH <sub>2</sub> FC <sub>1</sub> ) Monochlorofluoroethane	HCFC - 223 (C <sub>3</sub> HF <sub>3</sub> C <sub>14</sub> ) Tetrachlorotrifluoropropane

HCFC - 121 (C <sub>2</sub> HFC <sub>14</sub> ) Tetrachlorofluoroethane	HCFC - 224 (C <sub>3</sub> HF <sub>4</sub> C <sub>13</sub> ) Trichlorotetrafluoropropane
HCFC - 122 (C <sub>2</sub> HF <sub>2</sub> C <sub>13</sub> ) Trichlorodifluoroethane	HCFC - 225CA (C <sub>3</sub> HF <sub>5</sub> C <sub>12</sub> ) Dichloropentafluoropropane
HCFC - 123 (C <sub>2</sub> HF <sub>3</sub> C <sub>12</sub> ) Dichlorotrifluoroethane	HCFC - 225CB (C <sub>3</sub> HF <sub>5</sub> C <sub>12</sub> ) Dichloropentafluoropropane
HCFC - 124 (C <sub>2</sub> HF <sub>4</sub> C <sub>1</sub> ) Monochlorotetrafluoroethane	HCFC - 226 (C <sub>3</sub> HF <sub>6</sub> C <sub>1</sub> ) Monochlorohexafluoropropane
HCFC - 131 (C <sub>2</sub> H <sub>2</sub> FC <sub>13</sub> ) Trichlorofluoroethane	HCFC - 231 (C <sub>3</sub> H <sub>2</sub> FC <sub>15</sub> ) Pentachlorofluoropropane
HCFC - 132B (C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> C <sub>12</sub> ) Dichlorodifluoroethane	HCFC - 232 (C <sub>3</sub> H <sub>2</sub> F <sub>2</sub> C <sub>14</sub> ) Tetrachlorodifluoropropane
HCFC - 133A (C <sub>2</sub> H <sub>2</sub> F <sub>3</sub> C <sub>1</sub> ) Monochlorotrifluoroethane	HCFC - 233 (C <sub>3</sub> H <sub>2</sub> F <sub>3</sub> C <sub>13</sub> ) Trichlorotrifluoropropane
HCFC - 141B (C <sub>2</sub> H <sub>3</sub> FC <sub>12</sub> ) Dichlorofluoroethane	HCFC - 234 (C <sub>3</sub> H <sub>2</sub> F <sub>4</sub> C <sub>12</sub> ) Dichlorotetrafluoropropane
HCFC - 142B (C <sub>2</sub> H <sub>3</sub> F <sub>2</sub> C <sub>1</sub> ) Monochlorodifluoroethane	HCFC - 235 (C <sub>3</sub> H <sub>2</sub> F <sub>5</sub> C <sub>1</sub> ) Monochloropentafluoropropane

HCFC - 241 (C <sub>3</sub> H <sub>3</sub> FC <sub>14</sub> ) Tetrachlorofluoropropane
HCFC - 242 (C <sub>3</sub> H <sub>3</sub> F <sub>2</sub> C <sub>13</sub> ) Trichlorodifluoropropane
HCFC - 243 (C <sub>3</sub> H <sub>3</sub> F <sub>3</sub> C <sub>12</sub> ) Dichlorotrifluoropropane
HCFC - 244 (C <sub>3</sub> H <sub>3</sub> F <sub>4</sub> C <sub>1</sub> ) Monochlorotetrafluoropropane
HCFC - 251 (C <sub>3</sub> H <sub>4</sub> FC <sub>13</sub> ) Trichlorofluoropropane
HCFC - 252 (C <sub>3</sub> H <sub>4</sub> F <sub>2</sub> C <sub>12</sub> ) Dichlorodifluoropropane
HCFC - 253 (C <sub>3</sub> H <sub>4</sub> F <sub>3</sub> C <sub>1</sub> ) Monochlorotrifluoropentane
HCFC - 261 (C <sub>3</sub> H <sub>5</sub> FC <sub>12</sub> ) Dichlorofluoropropane
HCFC - 262 (C <sub>3</sub> H <sub>5</sub> F <sub>2</sub> C <sub>1</sub> ) Monochlorodifluoropropane
HCFC - 271 (C <sub>3</sub> H <sub>6</sub> FC <sub>1</sub> ) Monochlorofluoropropane



**MATTEL**

## MANUFACTURE AND PRODUCT CERTIFICATION

By signing this document, the vendor certifies that all product and product components sold to Mattel, Inc., its subsidiaries, and their respective vendors do not contain, or were not manufactured using, the following ozone-depleting substances: chlorofluorocarbons (CFCs), halons, carbon tetrachloride, methyl chloroform, methyl bromide, hydrobromofluorocarbons (HBFCs) or nonessential uses of hydrochlorofluorocarbons (HCFCs) (any aerosol product or other pressurized dispenser, or any plastic foam product).

The certifying party also agrees to maintain appropriate documentation in support of this certification, and to supply copies of this certification to the appropriate Mattel purchasing group. If necessary, documentation will be made available for inspection.

Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_


Certified by: \_\_\_\_\_  
(Type or Print Name and Title)

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Mattel – Confidential Information

5020 Environmental Substances that Deplete the Ozone Layer

	TITLE			
	2903 Colorants			
	NUMBER	REVISION	DATE	ASSIGNED AUTHOR
	2903	2.00	2018-08-14	Ying Gao
RAW MATERIAL SPECIFICATION				FOR QUESTIONS CONTACT
Mattel – Confidential Information				Ying Gao

## 1 - SCOPE (2903)

### 1.1 - Products and Components Covered

This document applies to all suppliers who supply **colorants** used for molding process.

### 1.2 - Exemptions (None)

### 1.3 - Definitions (Words that are defined are ***italicized and bolded*** once per section)

**1.3.1 - Colorants:** Examples – pigments, dyes, etc. Types of colorants:

- Dry color (powder colorant)
- Liquid color
- Masterbatch. Pelletized colorants comprised of high concentrations of pigments and/or dyes that have been pre-dispersed in a polymer vehicle.
- Pre-colored compound. The molder or extruder need not blend, disperse, or distribute the color. Instead, the resin itself is custom colored by either a resin producer or a specialty compounder.

**1.3.2 - Composite Sample:** A sample made from combining more than one material or color, e.g., paint (red, yellow, and blue); vacuum metalized coating (silver and gold). It is not considered compositing when colors or materials cannot be separated (e.g., thin stripes, doll eyes) are tested together.

### 1.4 - Purpose

Evaluate raw materials for compliance to Mattel safety standards for heavy elements content.

## 2 - PERFORMANCE REQUIREMENTS

**2.1 - Heavy elements content must be less than the limits per Table 1.**

**Table 1 - Test Limits**

ELEMENT	TOTAL (ppm)	SOLUBLE METHOD 1 (ppm)
Antimony (Sb)	-	30
Arsenic (As)	-	10
Barium (Ba)	-	250
Cadmium (Cd)	40	17
Chromium (Cr)	500	30
Lead (Pb)	20	20
Mercury (Hg)	500	30
Selenium (Se)	-	150



Aluminum (Al)		70000
Boron (B)		15000
Cobalt (Co)		130
Copper (Cu)		7700
Manganese (Mn)		15000
Nickel (Ni)	10000	930
Strontium (Sr)		56000
Tin (Sn)		180000
Zinc (Zn)		46000
Chromium VI (CrVI)*		0.053
Organic Tin*		12

**NOTE:**

\* The method for the detection of these elements are still to be determined. Refer to [QSOP 3600](#), [Heavy Elements](#) for the screening process of Organic Tin.

**2.1.1** - If a **colorant** (except pre-colored compound) test results are greater than the limits per table 1, the following calculation (Source: Samwoo Chemicals Ltd. ([www.samwoo.com.hk](http://www.samwoo.com.hk))) may apply to either accept or reject the material:

**2.1.1.1** - Dry or liquid color:

- 'Analytical Test Results' \* 4% ≤ 'Limit per Table 1'

**2.1.1.2** - Masterbatch:

- 'Analytical Test Results' \* 8% ≤ 'Limit per Table 1'

**2.1.1.3** - **Composite sample:**

- 'Analytical Test Results of Composite Sample' \* X \* Number of Colorants ≤ 'Limit per **Table 1**'; where X = 4% for dry or liquid color and 8% for masterbatch.

### 3 - PROCEDURE

**3.1 - Environment** (N/A)

**3.2 - Equipment** (N/A)

**3.3 - General Requirements**

**3.3.1** - Pigment material may be tested in powder or liquid form.

**3.3.2** - Refer to [QSOP 3600](#), [Heavy Elements](#) for test methodology.

**3.4 - Method** (N/A)

### 4 - HISTORY

**4.1 - Significance**

Compliance can be assured by using a testing and compliance system that will reduce the risk of finished products having an excessive amount of heavy elements.

**4.2 - Reason For Revision (2903)**

Section	Revision 2.00	Implementation
2.1, Table 1	Lowers the limit for Cr VI per Amendment of EU TSD and Costco's request.	Applies to all raw materials received on or after: <b>August 15, 2018</b>
5.1, A1	Updated the limit of antimony to 30 ppm	Editorial

Section	Revision 1.00	Implementation
All	Uploaded document to Polarion	Editorial
1.3	Updated to align with definition(s) with other document(s)	Editorial

#### 4.3 - Referenced Documents

- [GQMP 2118](#), Substrate Material Control
- [GQMP 2119](#), Heavy Elements Control on Substrates for Vendors
- [QSOP 3600](#), Heavy Elements

## 5 - FREQUENTLY ASKED QUESTIONS

### 5.1 - Question 1

**Question:** Can the results from Total testing be corrected before comparing with Soluble 1 specification limits?

**Answer:** Yes. The above calculation (§2.1.1) can be used to correct Total results when comparing against Soluble 1 limits. For example, a total test on a Masterbatch colorant shows a result of 40 ppm for Antimony (Sb). When comparing against Soluble 1 limits, the total result can be reduced down to 8% (3.2 ppm) before determining action. Therefore, since 3.2 ppm < 30 ppm (the limit of Antimony), the sample passes.

## 6 - ATTACHMENTS (None)

## 7 - APPENDICES (None)

**Mattel – Confidential Information**  
2903 Colorants



## DECLARATION of COMPLIANCE

By signing this document, < Salee Colour Public Co.,Ltd > certifies that it is their responsibility to ensure all materials supplied to Mattel Inc., its subsidiaries, affiliates, or their respective Vendors, comply with the following requirements, as amended from time to time:

- Applicable to Japanese Suppliers only:

Materials must not exceed the following levels of radiation with reference to the indices relating to limits on food established by Ministry of Health, Labour and Welfare of Japan:


- Radioactive iodine (including Iodine 131) – 2,000 Bq/kg
- Radioactive cesium (including cesium 134 and cesium 137) – 500 Bq/kg
- Uranium – 100 Bq/kg
- Alpha-emitting nuclides of plutonium and transuranic elements  
(Total radioactive concentration of Pu 238, Pu 239, Pu 240, Pu 242, Am 241, Cm 242, Cm 243, Cm 244) – 10 Bq/kg

Materials must not exceed the following level of radiation with reference to EU provisional permissible contamination on Japan food imports:

- Strontium (Sr 90) – 750 Bq/kg

- [QSOP 0006-3600](#), Heavy Elements (Revision: [8.00](#) or as revised from time to time)
- [QSOP 0006-3610](#), Plasticizer (Revision: [6.00](#) or as revised from time to time)
- [QSOP 0006-3621](#), Restricted Substances (Revision: [12.00](#) or as revised from time to time)
- [QSOP 0006-3622](#), Residual Monomers (Revision: [2.00](#) or as revised from time to time)
- [QSOP 0006-3614](#), Flame Retardants (Revision: [5.00](#) or as revised from time to time)
- [QSOP 0006-5020](#), Environmental – Substances that Deplete the Ozone Layer (Revision: [2.00](#) or as revised from time to time)
- [RMS 0006-2903](#), Colorants (Revision: [2.00](#) or as revised from time to time)

< Salee Colour Public Co.,Ltd > also agrees to maintain appropriate documentation in support of this certification and further certifies that it has direct knowledge of the manufacturer and, if requested by Mattel, other sources of the material(s) being supplied to Mattel. Documentation shall be made available for inspection by Mattel Inc. at its request. If the certifying party changes raw materials, raw material sources, engages in subcontracting, manufacturing processes and/or manufacturing location, that entity must notify Mattel (Contact: [<insert name here>](#)). Changes not notified to Mattel may constitute grounds for termination of any business contract, at Mattel's sole discretion.

Company:	<u>Salee Colour Public Co.,Ltd</u>
Address:	<u>858 Moo 2, Soi 1C/1 Bangpu Industrial Estate,Bangpumai, Muang Samutprakarn, SamutPrakarn 10280, Thailand</u>
Supplier Representative:	<u>Mr.Pansak Salukkham</u> (Type or print name and title)
Signature:	<u></u>
Date:	<u>October 16, 2019</u>



# MATTEL

## MANUFACTURE AND PRODUCT CERTIFICATION

By signing this document, the vendor certifies that all product and product components sold to Mattel, Inc., its subsidiaries, and their respective vendors do not contain, or were not manufactured using, the following ozone-depleting substances: chlorofluorocarbons (CFCs), halons, carbon tetrachloride, methyl chloroform, methyl bromide, hydrobromofluorocarbons (HBFCs) or nonessential uses of hydrochlorofluorocarbons (HCFCs) (any aerosol product or other pressurized dispenser, or any plastic foam product).

The certifying party also agrees to maintain appropriate documentation in support of this certification, and to supply copies of this certification to the appropriate Mattel purchasing group. If necessary, documentation will be made available for inspection.

Company: Salee Colour Public Co.,Ltd

Address: 858 Moo 2, Soi 1C/1 Bangpu Industrial Estate,Bangpumai, Muang  
Samutprakarn, SamutPrakarn 10280, Thailand

Certified by: Mr.Pansak Salukham  
 (Type or Print Name and Title)

Signature: \_\_\_\_\_

Date: October 16, 2019



# FRAGRANCE CERTIFICATE

Product Number:

Product Name:

By signing this document, *<insert supplier name here>* certifies that the fragrance supplied to Mattel Inc., its subsidiaries, affiliates, or their respective Vendors, when used at or below \_\_\_\_%, contains none of the ingredients listed below (1 through 66) at or above 100 mg/kg. Detectable levels of these substances should be reported in the table below. Traces of the substances from 1 to 55 may only be allowed if the presence is technically unavoidable under good manufacturing practice.

No.	Substance	CAS No.	Concentration (mg/kg)
1	Alanroot oil (Inula helenium)	97676-35-2	<u>0</u>
2	Allylisothiocyanate	57-06-7	<u>0</u>
3	Benzyl cyanide	140-29-4	<u>0</u>
4	4 tert-Butylphenol	98-54-4	<u>0</u>
5	Chenopodium oil	8006-99-3	<u>0</u>
6	Cyclamen alcohol	4756-19-8	<u>0</u>
7	Diethyl maleate	141-05-9	<u>0</u>
8	Dihydrocoumarin	119-84-6	<u>0</u>
9	2,4-Dihydroxy-3-methylbenzaldehyde	6248-20-0	<u>0</u>
10	3,7-Dimethyl-2-octen-1-ol (6,7-Dihydrogeraniol)	40607-48-5	<u>0</u>
11	4,6-Dimethyl-8-tert-butylcoumarin	17874-34-9	<u>0</u>
12	Dimethyl citraconate	617-54-9	<u>0</u>
13	7,11-Dimethyl-4,6,10-dodecatrien-3-one	26651-96-7	<u>0</u>
14	6,10-Dimethyl-3,5,9-undecatrien-2-one	141-10-6	<u>0</u>
15	Diphenylamine	122-39-4	<u>0</u>
16	Ethyl acrylate	140-88-5	<u>0</u>
17	Fig leaf, fresh and preparations	68916-52-9	<u>0</u>
18	trans-2-Heptenal	18829-55-5	<u>0</u>
19	trans-2-Hexenal diethyl acetal	67746-30-9	<u>0</u>
20	trans-2-Hexenal dimethyl acetal	18318-83-7	<u>0</u>
21	Hydroabietyl alcohol	13393-93-6	<u>0</u>
22	4-Ethoxy-phenol	622-62-8	<u>0</u>
23	6-Isopropyl-2-decahydronaphthalenol	34131-99-2	<u>0</u>
24	7-Methoxycoumarin	531-59-9	<u>0</u>
25	4-Methoxyphenol	150-76-5	<u>0</u>
26	4-(p-Methoxyphenyl)-3-butene-2-one	943-88-4	<u>0</u>
27	1-(p-Methoxyphenyl)-1-penten-3-one	104-27-8	<u>0</u>

28	Methyl trans-2-butenolate	623-43-8	<u>Q</u>
29	6-Methylcoumarin	92-48-8	<u>Q</u>
30	7-Methylcoumarin	2445-83-2	<u>Q</u>
31	5-Methyl-2,3-hexanedione	13706-86-0	<u>Q</u>
32	Costus root oil (Saussurea lappa Clarke)	8023-88-9	<u>Q</u>
33	7-Ethoxy-4-methylcoumarin	87-05-8	<u>Q</u>
34	Hexahydrocoumarin	700-82-3	<u>Q</u>
35	Peru balsam, crude (Exudation of Myroxylon pereirae (Royle) Klotzsch)	8007-00-9	<u>Q</u>
36	2-Pentylidene-cyclohexanone	25677-40-1	<u>Q</u>
37	3,6,10-Trimethyl-3,5,9-undecatrien-2-one	1117-41-5	<u>Q</u>
38	Verbena oil (Lippia citriodora Kunth)	8024-12-2	<u>Q</u>
39	Musk ambrette (4-tert-Butyl-3-methoxy-2,6-dinitrotoluene)	83-66-9	<u>Q</u>
40	4-Phenyl-3-buten-2-one	122-57-6	<u>Q</u>
41	Amyl cinnamal	122-40-7	<u>Q</u>
42	Amylcinnamyl alcohol	101-85-9	<u>Q</u>
43	Benzyl alcohol	100-51-6	<u>Q</u>
44	Benzyl salicylate	118-58-1	<u>Q</u>
45	Cinnamyl alcohol	104-54-1	<u>Q</u>
46	Cinnamal	104-55-2	<u>Q</u>
47	Citral	5392-40-5	<u>Q</u>
48	Coumarin	91-64-5	<u>Q</u>
49	Eugenol	97-53-0	<u>Q</u>
50	Geraniol	106-24-1	<u>Q</u>
51	Hydroxy-citronellal	107-75-5	<u>Q</u>
52	Hydroxy-methylpentylcyclohexenecarboxaldehyde	31906-04-4	<u>Q</u>
53	Isoeugenol	97-54-1	<u>Q</u>
54	Oakmoss extracts	90028-68-5	<u>Q</u>
55	Treemoss extracts	90028-67-4	<u>Q</u>
56	Anisyl alcohol	105-13-5	<u>Q</u>
57	Benzyl benzoate	120-51-4	<u>Q</u>
58	Benzyl cinnamate	103-41-3	<u>Q</u>
59	Citronellol	106-22-9	<u>Q</u>
60	Farnesol	4602-84-0	<u>Q</u>
61	Hexyl cinnamaldehyde	101-86-0	<u>Q</u>
62	Lilial	80-54-6	<u>Q</u>
63	d-Limonene	5989-27-5	<u>Q</u>
64	Linalool	78-70-6	<u>Q</u>
65	Methyl heptine carbonate	111-12-6	<u>Q</u>
66	3-methyl-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one	127-51-5	<u>Q</u>

The certifying party also agrees to maintain appropriate documentation in support of this certification and further certifies that it has direct knowledge of the manufacturer and, if requested by Mattel, other sources of the material(s) being supplied to Mattel. Documentation shall be made available for inspection by Mattel Inc. at its request. If the certifying party changes raw materials, raw material sources, engages in subcontracting, manufacturing processes and/or manufacturing location, that entity must notify Mattel (Contact: [<insert name here>](#)). Changes not notified to Mattel may constitute grounds for termination of any business contract, at Mattel's sole discretion

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Certified by: Mr.Pansak Salukkhram



(Type or print name and title)

Signature: \_\_\_\_\_

October 16, 2019

Date: \_\_\_\_\_