PUMA SUSTAINABILITY HANDBOOK

Chemical Management

Version.04.2018
Foreword

At PUMA, we believe that our position as creative leader in the Sports industry gives us the opportunity and the responsibility to contribute to a better world for generations to come. With the Forever Faster transformation, Sustainability remains a key value of the PUMA brand. Faster is how we are working towards a more just and sustainable future, accelerating positive change in the industry and the world. We believe that by staying true to our values, inspiring the passion and talent of our people, working in sustainable, innovative ways, and doing our best to be Fair, Honest, Positive, and Creative, we will keep on making the products our customers love, and at the same time bring our vision of a better world a little closer every day.

We aim to bring our trading practices in line with the principles of sustainable development. This means that we do not just want to provide high-quality products, but it is our duty to ensure that these products are manufactured in workplaces where human rights are respected and workers’ health and safety as well as the environment are protected.

PUMA takes on the responsibility for everybody involved in the production process, whether a PUMA employee or not. However, this responsibility cannot replace nor substitute the responsibility of our vendors within their own manufacturing facilities. Our “Code of Conduct” expresses the expectations we have of our vendors. It is integrated into our manufacturing agreement, which delimits the business relationship we share with our partners. PUMA takes this shared responsibility seriously. We reserve the right to terminate business relations with any partner who does not respect the letter or the spirit of our Code of Conduct or Corporate Sustainability Policies.

Only by partnering up with our vendors we will be able to have a positive impact and contribute to making a better world for the communities we operate in, the workers who make our great products, our customers and our own employees and, of course, for future generations.

Lars Sørensen  
Chief Operating Officer

Michael Bennett  
Global Director, SourceCo
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Introduction

The protection of the environment, in accordance with established environmental and social standards has become an important topic in every industry, as well as in society in general. As a signatory of the United Nations Global Compact, PUMA is committed to setting an example on reducing the impact on the environment, both from own entities and within the supply chain, as well as, product usage and end of life. PUMA requires that all our vendors worldwide fulfil established environmental and social standards.

While continuously optimizing the production process, PUMA also sets targets to reduce our environmental footprint and mitigate negative impacts to the world’s ecosystem of our supply chain. PUMA’s comprehensive and ambitious targets to reduce our environmental impact and become more sustainable can be encompassed in the PUMA 10FOR20 Sustainability Targets.

PUMA pursues contractual relationships with licensees and vendors that have agreed to comply with the guidelines set out in the PUMA Sustainability Handbooks. All PUMA vendors are contractually bound to pursue only business relationships with subcontractors that are in compliance with these established guidelines and directives.

It is the responsibility of our vendors to ensure that all minimum legal requirements concerning labor, worker health & safety, environment and product safety are fully complied with. However, our standards may exceed the legal requirements of the national laws of the countries. These standards are explained in the “PUMA Sustainability Handbooks”. Our guidelines for sustainability and environmental protection are contained in the handbook “Environmental Standards", the guidelines for Chemicals and Restricted Substances are in “Chemical Management", and finally the handbooks “Social Standards” and “Occupational Health & Safety” elaborate in detail PUMAs position on labor and health and safety.

These four handbooks are subject to continuous updates, so suggestions and comments to improve are welcome.

This Chemical Management Handbook explains the chemicals management processes which must be followed during production of PUMA goods.

The Puma Policy on the elimination of Hazardous Substances from the supply chain has two main axes.

i. Making sure that our products are free from harmful substances. This is achieved through compliance to the AFIRM RSL. RSL compliance ensures consumer safety, provides compliance to legal requirement and it is not negotiable.

ii. Making sure that chemicals used in the production of our products do not contain hazardous substances. This is achieved through compliance to the ZDHC MRSL and the implementation of an input-stream oriented chemical management system.

After the definition of RSL requirements, the PUMA RSL Database is introduced as a central tool for vendors and PUMA to manage RSL testing and improve test efficiency over time.

To support our target of zero discharge of hazardous chemicals, the handbook continues with the management of input- and output-streams. It introduces the Manufacturing Restricted Substances List (MRSL) of the Zero Discharge of Hazardous Chemicals Program and its implementation at supplier level as a precondition to avoid the discharge of hazardous chemicals via industrial wastewaters. PUMAs detox commitment and roadmap for implementation can be found on our sustainability website at: http://about.puma.com/en/sustainability/environment. The handbook makes reference to industry working groups and standards related to chemicals management and provides links for further reading.
SECTION ONE
Restricted Substances

1.1 Restricted Substances List

PUMA has adopted the AFIRM RSL and makes it the binding RSL standard for PUMA manufacturers and suppliers at all levels of the apparel, accessories and footwear supply chain. The AFIRM RSL shall be used as a reference for limits and testing methods of restricted substances possibly found in raw materials and production processes.

The AFIRM RSL is available in several languages here: http://www.afirm-group.com/afirm-rsl/

The AFIRM RSL applies to all materials and components in PUMA products. PUMA requires all materials and components to be tested on restricted harmful substances before they are used for the manufacturing of finished products.

As a second step of the RSL testing procedure, PUMA reserves the right to randomly test finished products. As a global brand, PUMA cannot tolerate any violation of product safety regulations, which may endanger the health of consumers and lead to costly product recalls, loss of consumer confidence as well as negative publicity. Therefore, PUMA has implemented strict penalties for breaches of RSL policies and expect all suppliers to strictly ensure that only RSL compliant materials are used for PUMA production.

1.2 Additional Requirements

Besides restricted substances of the AFIRM RSL, there are some additional parameters that PUMA restricts for its products as well as requirements for certain applications. These include restrictions and requirements on PVC, Per- and Polyfluorinated Chemicals (PFCs), adhesives, biocides, nanomaterials, odor, and Volatile Organic Compounds (VOCs), which are explained in more detail in the following section.

1.2.1 REACH


PUMA does not allow any Substances of Very High Concern (SVHC) to be present in PUMA products and materials above a concentration of 0.1% (w/w). The “Candidate list of substances of very high concern for Authorization” can be found under the following link: https://echa.europa.eu/candidate-list-table. Selected chemicals in the candidate list with known risk to contaminate materials used in footwear and garments are also included in PUMA test matrix.

1.2.2 Ban of Polyvinylchloride (PVC)

PUMA has banned the use of PVC in any PUMA products (including components) since 2003.

The PUMA PVC-free policy can be validated using the “Beilstein Test” test method as qualitative analysis, and FTIR test method to confirm results if tested positive.

1.2.3 Elimination of Per- and Polyfluorinated Chemicals (PFCs)

PUMA has banned the use of long-chain PFCs since 2015 and PFCs from January 2018 onwards. Any exceptions need to be signed off in writing by the PUMA Sustainability department.
PFCs are commonly used in chemicals providing a Water Repellent function (WR) making the surface of a fabric or product water, oil and dirt repellent. PFCs are also used in the production of membranes made of Polytetrafluoroethylene (PTFE).

1.2.4 Elimination of Volatile Organic Compounds (VOCs) in Adhesives

PUMA targets to reduce the VOC (solvent) consumption per pair of shoe to below fifteen (15) grams by 2020.

This can be achieved by maximizing the use of water-based adhesives and cleaners. Vendors are required to ask the PUMA production or development team to sign-off the use of any solvent-based adhesives if needed for particular applications. PUMA regularly collects VOC consumption data from factories. Therefore, all PUMA footwear vendors shall be prepared to present VOC usage figures per unit of production to PUMA. Vendors for other product categories shall also keep statistics on their VOC usage as part of their Chemical Inventory.

1.2.5 Elimination of Dimethylformamide (DMFa)

Polyurethane (PU) material is used in a wide range of PUMA products including shoes, bags and balls. PU materials are manufactured either using water-based or solvent/DMFa – based technologies. Dimethylformamide (DMFa) is widely used in the production of PU coating and PU synthetic leather. However, DMFa is classified as toxic to reproduction and the chemical is listed as carcinogenic by the California Proposition 65 regulation. EU REACH also has classified DMFa as Substances of Very High Concern (SVHC). The current AFIRM RSL limit for DMFa is 500ppm. PUMA recommends its suppliers to use DMFa free and water based technologies wherever economically and technically feasible. In addition, we strongly recommend adopting the Bluesign BSSL limit value for DMF of 50 ppm as a proactive approach to ensure full legal compliance and maximum consumer safety. Please note that a replacement of DMFa by DMAC or other toxic solvents is not an acceptable solution as this chemical is also classified as toxic by REACH and California Proposition 65. For products classified as “sustainable” a DMFa limit value of 10 ppm shall apply. PUMA has set a long-term target to phase out the use of DMFa from its products entirely.

1.2.6 Materials with Food or Mouth Contact

For PUMA products that are intended to come into contact with food or the mouth, as for example water bottles, certain additional requirements must be fulfilled. The following European regulations are applicable for those products and need to be followed.

- Regulation (EC) No 1935/2004, which covers general rules applicable to all materials and articles intended to come into contact with foodstuffs
- GMP Regulation (EC) No 2023/2006 (Good Manufacturing Practice)
- Regulation (EC) No 10/2011, on plastic materials and articles intended to come into contact with food
- BfR Recommendations on Food Contact Materials

Please contact PUMA Sustainability Team for more information and testing requirements.

1.2.7 Biocidal finish

The use of biocidal finishes on PUMA products is not allowed. In exceptional cases the use might be requested by PUMA to achieve a certain performance as e.g. anti-microbial or anti-odor. However, any biocidal finish must be approved by PUMA before use and meet the requirements of the Biocidal
Products Regulation (BPR, Regulation (EU) 528/2012) as well as the US EPA “Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)”.

Special attention has to be given to labelling requirements included in above-mentioned regulations. For more information please contact the PUMA Sustainability team (see SECTION FOUR for contact details) or your contact person from the PUMA Material Sourcing teams.

1.2.8 Nanomaterials

Per the “Commission Recommendation of 18/10/2011 for the definition of nanomaterial” (2011/696/EU), nanomaterials consist of definable structural components with a size range of 1 to 100 nanometers in at least one dimension. If any materials fall under this definition, they must be evaluated and approved by PUMA Sustainability team before they can be used in the manufacture of PUMA products.

1.2.9 Odor

Products and materials must not emit any abnormal (non-material or not product-specific) odor.

In case an abnormal odor is detected during manufacturing, the material should be tested in a laboratory and the elimination of the abnormal odor must be ensured. Odor (sensory) testing should be done according to norm SNR 195651:2015-09.

The following scale shows the result options of sensory testing:

1 = No odor  
2 = Slight odor  
3 = Medium odor  
4 = Unpleasant odor  
5 = Extremely unpleasant odor

Depending on the test result the following procedures apply:

<table>
<thead>
<tr>
<th>Odor testing result</th>
<th>PUMA requirements and implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale 1 or 2</td>
<td>Acceptable – can be delivered</td>
</tr>
<tr>
<td>Scale 3 or 4</td>
<td>Not acceptable – confirmation test with third party laboratory to ensure no hazardous substances are present and elimination of odor is mandatory</td>
</tr>
<tr>
<td>Scale 5</td>
<td>Outright rejection on-site – not acceptable by PUMA</td>
</tr>
</tbody>
</table>

For more information on how to do odor tests in the factory, please contact PUMA Sustainability team (see SECTION FOUR for contact details) for the Standard Operating Procedure (SOP) on on-site odor testing.

1.3 RSL Testing Procedure

1.3.1 RSL Test Matrix

PUMA developed a test matrix to provide a clear guidance for suppliers on which tests are required for which type of materials. This test matrix can be found in Appendix II of this handbook.

1.3.2 Sampling procedure
To prove compliance, all components (materials, applications, trims) of a product must be tested by a PUMA approved lab, or a valid\(^1\) test report based on the AFIRM RSL, e.g. from another brand, must be provided. Also accepted are bluesign® approved materials or materials certified according to OEKO-TEX® Standard 100. Materials holding these certifications are exempted from additional RSL testing.

Samples sent to the lab should be accompanied by the Test Request Form created in the PUMA RSL Database so that labs can identify the samples and enter test results into the PUMA RSL Database directly (see section 2.2 for details on the PUMA RSL Database).

PUMA approved laboratories will receive a copy of our handbook including the AFIRM RSL and PUMA test matrix. These documents and the information on test programs specified in the PUMA RSL Database will support PUMA approved laboratories to choose the required parameters for testing based on the material composition. Laboratories shall directly communicate to suppliers which sample size or amount of material is needed to complete all required tests.

A list of PUMA approved labs can be found in the PUMA RSL Database, as well as on the PUMA Sustainability website.

In certain cases, also finished products need to be tested on specific harmful substances in addition to the components, if required by individual country regulations. These exceptions are communicated to PUMA suppliers directly via RSL Standard Operating Procedures (SOPs). Examples for such countries are Turkey, South Korea or the USA.

Suppliers should store a reference sample for one year in the factory and keep a record of the material that they have sent to the lab coming from the same batch of production. This reference sample can be used in case more material is needed for testing, to assist in interpreting test results, or in case of customer claims and the necessity of re-testing.

If a new type of material is used for production and the manufacturer cannot ensure that the material has the same source of origin and the same quality, the sampling and testing procedure must be repeated.

**Testing of mixed samples:** PUMA allows testing of mixed sample of materials with the same fiber composition. Permitted are mixed samples with a maximum of three (3) colors. In case of failed results or preliminary failure, single testing is necessary to be able to conclude final test results for each material.

**Smart testing:** Generally, all material/color combinations must comply to our RSL standards. Type of tests should be chosen based on the PUMA Test Matrix. However, if a high number of colors is produced of the same material type (composition) by the same factory, it is acceptable to reduce the number of tests per material based on risk level. That means tests should be performed at least on high risk main colors (black, brown, orange, red, blue, silver, gold) to represent similar other colors. In case of any failure in one main color, all similar colors should be tested to ensure compliance.

\(^{1}\) Valid means complete, passed and less than one year old.
SECTION TWO

RSL Compliance Process

2.1. RSL Compliance Process

The flow chart in Figure 1 shows a simplified version of the PUMA RSL compliance process.

![Simplified RSL compliance process flow chart](image)

RSL compliance of materials must be ensured by suppliers and manufacturers and is controlled by PUMA before products are released for production. Additional random checks of components and finished products are performed by PUMA to verify the effectiveness of RSL compliance programs at manufacturers and suppliers.

All manufacturers must go through a PUMA Compliance Audit before they are authorized to produce for PUMA or subsidiaries. To receive the “Letter of Authorization” for PUMA production, suppliers must pass the PUMA Compliance Audit and prepare the RSL Summary Sheet in the RSL Database (see section 2.5 for more information).

The RSL compliance process involves certain tasks and responsibilities as explained in the following:

2.1.1 Responsibilities of PUMA

- As a member of the AFIRM Group, ensure that the AFIRM RSL is updated on a regular basis to cover all relevant legal requirements;
- Provide the PUMA RSL database for all vendors including vendors of materials and components;
- Inform all PUMA vendors and accredited laboratories regularly on changes in the PUMA chemicals policy and handbook;
- Ensure only RSL compliant materials and components are nominated by PUMA (this does not exclude the suppliers’ duty to ensure all materials and components used for PUMA products are RSL compliant).

2.1.2 Responsibilities of Manufacturers (Tier 1)

- Are responsible to produce RSL compliant finished goods;
• Must ensure that all materials are RSL compliant before using them in the production of PUMA products;
• Will be held responsible and liable for loss and damage suffered by PUMA, should any material, component or finished product be non-compliant;
• Must have a reasonable RSL compliance program in place. See section 2.7 for details.

2.1.3 Responsibilities of Material and Component Suppliers (Tier 2 and 3)

• Must ensure that all the materials used in the manufacture of PUMA products fully comply with RSL requirements;
• Must provide a valid test report, or alternatively a valid bluesign® or OEKO-TEX® certification to the manufacturer and upload it to the PUMA RSL Database.

2.2 PUMA RSL Database

The PUMA RSL Database is the central storage for RSL test reports. All test information for materials and finished products shall be uploaded to this database. It can be accessed by suppliers of all Tiers, PUMA approved labs and PUMA employees.

To log-in to the database, please enter the following website with your log-in details or register a new account at http://puma.rslinsight.com. After registering you can go to the HELP page from where you can download the Supplier Training Manual. Training Manuals are also provided to new suppliers during the onboarding process.

Each party has different tasks and responsibilities regarding the use of the PUMA RSL Database as described in the following:

2.2.1 Duties for Manufacturers (Tier 1)

• Monitor the RSL compliance status of materials and the performance of material suppliers;
• Create an RSL Summary Sheet of all materials in use and check if valid test reports or certificates are available for each material;
• If test information is missing, ask material suppliers to upload test reports or certificates, or upload available documents yourself;
• If there is no test report available on material level, the finished-product must be tested;
• Link test reports or certificates that are stored in the database to your materials through the RSL Summary Sheet.
• Provide the RSL Summary Sheet to PUMA Sustainability Team to check if RSL compliance is given for all styles and materials to issue the Letter of Authorization for production.

2.2.2 Duties for Material and Component Suppliers (Tier 2 and 3)

• Enter all materials to be used in PUMA products into the PUMA RSL Database by creating a Test Request Form (TRF).
• Send samples to a PUMA approved testing lab, or upload valid certificates (bluesign® or OEKO-TEX®), or already existing valid test reports based on the RSL AFIRM standard;
• Check if all materials provided to testing institutes have passed the RSL requirements (if not, ensure that materials are improved and tested again, or be replaced by RSL compliant materials);

2.2.3 Duties for Third Party Testing Institutes

• Access the TRF (Test Request Form) created by the material suppliers or manufacturers in the PUMA RSL Database and create a sample submission in the system to upload test results;
• Enter test results into the system and upload a PDF test reports to complete the submission.
2.3 Remediation Procedure

In case an RSL failure is detected for any substance on any material or component of a product, appropriate remedial action shall be conducted (see Figure 2). Proper investigation through a root-cause analysis must be carried out to specifically determine the source of failure. Until there is a pass test report for each material, proving its compliance to PUMA RSL requirements, it shall not be used in any manufacturing of PUMA products.

If root-cause analysis and remedial actions show that a material will not pass a re-test, the manufacturer shall seek a substitute material and/or source from a different material supplier who can provide a pass and valid test report for the material.

![Figure 2: RSL testing and remediation procedure in case of RSL failure]

2.4 RSL Compliance Failures and Penalties

In case of RSL compliance failure, PUMA reserves the right to charge a penalty to the manufacturer as defined in the Manufacturing Agreement with its Declaration of Principles.

In the event of a product recall due to non-compliance to RSL requirements the factory shall bear all costs incurring in the recall process. For more details please refer to the Manufacturing Agreement.

2.5 RSL Summary Sheet and Letter of Authorization (LoA)

To become a PUMA authorized manufacturer and receive the Letter of Authorization (LoA), suppliers must go through a yearly verification procedure. This includes the PUMA Compliance audit by PUMAs Sustainability team, an effective RSL compliance program, as well as providing an RSL Summary Sheet.

The RSL Summary Sheet must be created in the PUMA RSL Database by the manufacturer (Tier 1 supplier). It should include information on all materials used by the manufacturer including the RSL test
status. RSL Summary Sheets can be created per style, per style group (for styles with same materials and similar design), or per “Master Sheet” including all materials one single RSL Summary Sheet.

For more information, please contact PUMA Sustainability team for the SOP on LoA issuance (see SECTION FOUR for contact details).

2.6 Certificates of Compliance

There are two versions of Certificates of Compliance; one for materials and one for finished products. Templates for both versions can be found on our PUMA Sustainability website at:

2.6.1 Certificate of Compliance for Materials

This certification can be filled out optionally by material suppliers to provide the information to manufacturers or PUMA employees that materials have been tested and are following RSL requirements. Manufacturers can ask for this certificate to collect information for all materials as part of their RSL compliance management program.

2.6.2 Certificate of Compliance for Finished Products

In case key customers of PUMA or certain country specifications require a documentation of RSL compliance of PUMA products, manufacturers shall use the Certificate of Compliance for Finished Products to confirm that all PUMA styles produced by the factory are compliant. The basis for filling out this Certificate is the completed RSL Summary Sheet in the RSL Database.

2.7 Requirements for RSL Compliance Programs at Manufacturers

To fulfill PUMA RSL standards and be granted a PUMA approved manufacturer, the manufacturer needs to have a reasonable RSL Compliance Program in place. How to set up this program is up to each supplier, but it should at least include the following points:

- Have an internal system in place to make sure all materials are RSL compliant (as explained in above sections) before they are used for production;
- Use the PUMA RSL Database to upload test reports and create the RSL Summary Sheet;
- Do RSL random checks of finished products or materials to check if RSL conformance declarations from material suppliers are valid.

2.8 US Consumer Product Safety Improvement Act (CPSIA)

All articles imported to the United States of America fall under the US CONSUMER PRODUCT SAFETY IMPROVEMENT ACT (CPSIA). Even though RSL test reports might exist for a material, it still is possible that materials must be tested on certain parameters to comply with CPSIA. PUMA Sourcing informs suppliers about the destination country of products. Only if PUMA products are supposed to be sold to the US market, this section is relevant.

CPSIA included provisions addressing, among other things, lead, phthalates, toy safety, durable infant or toddler products, third-party testing and certification, tracking labels, imports, ATVs, civil and criminal penalties and SaferProducts.gov, a publicly-searchable database of reports of harm.2

CPSIA defines the term “children’s product” and generally requires that children’s products:

1. Comply with all applicable children’s product safety rules;
2. Be tested for compliance by a CPSC-accepted accredited laboratory, unless subject to an exception;
3. Have a written Children’s Product Certificate that provides evidence of the product’s compliance; and
4. Have permanent tracking information affixed to the product and its packaging where practicable.3

The CPSIA requires manufacturers or importers of non-children’s products to issue a GENERAL CERTIFICATE OF CONFORMITY (GCC).

To issue such a General Certificate of Conformity (GCC), suppliers must provide proof of having a reasonable testing program in place or, depending on the product type, they need to have a valid test report from an authorized test laboratory for each article.

To comply with the CPSIA requirements, you can find a table showing US CPSIA Testing Requirements below. It shows which products must be tested before shipment to the US according to which legislation as well as test methods and requirements.

Table 1: US CPSIA Testing Requirements

<table>
<thead>
<tr>
<th>US CPSIA testing requirements apply to the following products:</th>
<th>Test Method</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Apparel</td>
<td>Children’s Apparel (not sleepwear)</td>
<td>Children’s Footwear</td>
</tr>
<tr>
<td>Lead, 16 CFR 1303 (applied surface coating)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead content in substrates – CPSIA Section 101</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Small Parts, 16 CFR 1501 (only for attached components)</td>
<td>No</td>
<td>Yes, if for children under 3 years</td>
</tr>
<tr>
<td>Sharp Points, 16 CFR 1500.48 Sharp Edges, 16 CFR 1500.49 (only for attached components)</td>
<td>No</td>
<td>Yes, if for children under 8 years</td>
</tr>
<tr>
<td>Flammability of Fabric, 16 CFR 1610</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Flammability of Children’s Sleepwear (sizes 0-6), 16 CFR 1615</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Flammability of Children’s Sleepwear (sizes 7-14), 16 CFR 1616

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>No</th>
<th>No</th>
<th>No</th>
<th>Yes, children’s sleepwear sizes 7-14</th>
<th>16 CFR 1616</th>
<th>Pass</th>
</tr>
</thead>
</table>

Flammability in Vinyl Plastic Film (if contains synthetic coating), 16 CFR 1611

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>Yes, for bags, if contains synthetic coating</th>
<th>Yes, if coats, bags, shirts, pants, etc., with synthetic coating</th>
<th>16 CFR 1611</th>
<th>Pass</th>
</tr>
</thead>
</table>

Phthalates CPSIA Section 108

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>No</th>
<th>Not yet, but might be regulated</th>
<th>Yes, depends on article</th>
<th>Yes, if it is a toy</th>
<th>CPSC-CH-C1001-09.3 or GB/T 22048-2008</th>
</tr>
</thead>
</table>

Pass

≤ 0.1 % DEHP, DBP, or BBP for toys or childcare items
≤ 0.1 % DINP, DIDP, or DNOP for toys and childcare items that can be put into the mouth

More details on the test methods and requirements of the regulations can be found on the CPSIA website: https://www.cpsc.gov/Regulations-Laws--Standards/Statutes/The-Consumer-Product-Safety-Improvement-Act/

2.8.1 PUMA CPSIA Compliance Procedure

All CPSIA tests (see Table 1) must be uploaded to the PUMA RSL Database. When adding a material or finished product for CPSIA testing, you can choose “CPSIA” as test program in the Test Request Form. Test packages based on the CPSIA test methods and standards are already pre-defined in the PUMA RSL Database and available for laboratories to choose from. To get detailed information on how to use the PUMA RSL Database for CPSIA testing, please refer to the training manual, available for download in the help section of the PUMA RSL Database. After successful testing according to the standards, manufacturers can print their GCC (called “CPSIA Certificate of Compliance”) directly from the Database.

A list of CPSC-accepted laboratories can be found here: https://www.cpsc.gov/cgi-bin/labsearch/

All people involved in CPSIA testing must sign and follow the Undue Influence Policy. The policy is part of our anti-corruption procedures.
SECTION THREE
Environmental Standards and Chemicals Management

3.1 Product Related Risk Management

The AFIRM RSL mentioned in the previous chapters provides a standard that ensures the safety of our products. To learn more about the successful implementation of an RSL compliance system and on how to manage risk to meet brand’s RSL requirements, we refer to the AFIRM “RSL Implementation Toolkit” for suppliers, which provides technical information to help eliminate or reduce restricted substances in finished goods. It offers information on the background of restricted substances, testing procedures, RSL implementation strategies, risk assessment and resolution of RSL failures. The toolkit is available to the public for download at the AFIRM website at http://afirm-group.com/toolkit/ in English, Chinese, Vietnamese and Spanish.

3.2 Production Related Risk Management

While the AFIRM RSL and toolkit primarily focuses on the elimination of restricted substances from finished products, risks in the supply chain, coming from the presence of hazardous chemicals, can be most appropriately managed by controlling the input-stream to the production process. The idea of only allowing “good” chemistry to enter the production process is essential to ensure safe products and zero discharge of hazardous chemicals in the output, such as products, air emissions or wastewater. Figure 3 shows tools and standards to be applied in certain steps of the production process.

![Figure 3: Input-stream management and controlling tools]

We expect suppliers to implement an input-stream management system in their facilities. There are different approaches to implement an input-stream and chemical management system. Please see sections 3.3 and 3.4.
3.3 Input- and Output-Stream Management

To achieve our goal of zero discharge of hazardous chemicals, the input-stream of chemicals into a factory as well as output-streams like water discharge must be managed.

The following figure provides an overview of the process flow of how input and output streams can be managed and controlled as described in the following sections.

![Process flow of an input- and output-stream management](image)

**Figure 4: Process flow of an input- and output-stream management**

### 3.3.1 ZDHC Manufacturing Restricted Substances List (MRSL)

One important aspect when implementing an input-stream management is controlling the chemistry that is used in the production process. PUMA asks its suppliers to source chemicals that comply with the ZDHC Manufacturing Restricted Substances List (MRSL).

The latest version of the ZDHC MRSL can be downloaded here: http://www.roadmaptozero.com/programme/manufacturing-restricted-substances-list-mrsl-conformity-guidance/

In comparison to a Restricted Substances List (RSL) which refers to harmful substances restricted in materials and finished products, the MRSL bans the use of hazardous substances in chemicals and formulations used in facilities that process materials and trim parts for use in apparel and footwear. Chemicals on the ZDHC MRSL include solvents, cleaners, adhesives, paints, inks, detergents, dyes, colorants, auxiliaries, coatings and finishing agents used during raw material production, wet-processing, maintenance, wastewater treatment, sanitation and pest control. There should be no intentional use of MRSL-listed substances in facilities. MRSL limits apply to substances in commercially available chemical formulations and not those from earlier stages of chemical synthesis.

---

**Regarding the goal of Zero Discharge of Hazardous Chemicals, all PUMA suppliers shall adopt the ZDHC MRSL by only using MRSL conform chemistry.**

**To acknowledge this goal, PUMA suppliers shall sign the PUMA MRSL ACKNOWLEDGEMENT LETTER which can be found on the PUMA Sustainability website.**

---
3.3.2 Establishing a Chemical Inventory

Establishment of a chemical database and regularly updating it together with periodic risk mapping are essential foundations to achieve the goals of eliminating hazardous substances in PUMA's supply chain. In this regard, PUMA asks its suppliers to maintain information about their materials suppliers and the different chemicals used in all production processes. This will facilitate traceability in terms of identifying risks and manufacturing processes where hazardous chemicals might possibly be used.

3.3.3 Checking ZDHC MRSL Compliance of Chemicals

The ZDHC MRSL is a tool for factories that shall help them to communicate with their chemical suppliers. The management of chemicals starts with purchasing them from chemical suppliers who can show that they are producing and delivering chemical formulations of acceptable quality. A quality formulation means that it does not contain banned chemicals listed on the ZDHC MRSL and that it will meet performance requirements to manufacture a product that meets PUMA's standards.

To check if chemical formulations are ZDHC MRSL compliant, several checks can be done that are based on the conformance levels of the ZDHC MRSL Conformance Guidance. Suppliers can either collect information on conformity themselves or use the “ZDHC Gateway – Chemical Module” to look up conformance levels of already registered chemicals (preferred option).

**ZDHC Gateway – Chemical Module:** The ZDHC Gateway is a tool that contains a section for chemicals. Chemical suppliers can register their chemicals in this Gateway including information on MRSL compliance. Depending on the comprehensiveness of the information provided, different compliance levels are assigned to the chemical formulations. These range from the lowest conformance level 0 (self-declaration) to the highest conformance level 3 (site visit of chemical supplier). The higher the compliance level the less risk is taken that chemical formulations are not compliant to the ZDHC MRSL.

Figure 5 shows the “Requirements for Registration and MRSL Conformance Levels” as written in the ZDHC document “MRSL Conformance Guidance”, page 13, Table 1.

<table>
<thead>
<tr>
<th>MRSL Conformance Level</th>
<th>Registered Chemical Supplier with ZDHC Gateway - Chemical Module</th>
<th>Register Formulation Name and SDS with ZDHC Gateway - Chemical Module</th>
<th>Self-declaration of MRSL Conformity</th>
<th>Test report meeting ZDHC Quality Criteria (Annex A)</th>
<th>Third-party review of documentation against MRSL</th>
<th>Chemical Supplier Product Stewardship Review</th>
<th>Chemical Supplier Site Visit</th>
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</thead>
<tbody>
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<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>1</td>
<td>Automatic when formulation certified by ZDHC accepted body</td>
<td>As required by certification body</td>
<td>Test report OR third-party review of documentation</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2</td>
<td>As required by certification body</td>
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<td>X</td>
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<tr>
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</table>

Figure 5: Requirements for Registration and MRSL Conformance Levels, source: http://www.roadmaptozero.com/fileadmin/pdf/Files_2017/MRSL_Conformance_Guidance_052017.pdf, date of access: 09/03/2018.
Levels of Conformance by ZDHC:

The levels of conformance are related to the confidence that any specific batch of the chemical formulation will meet the MRSL requirements. Higher levels of conformance mean that there is increasingly more known about the chemical formulation and the environmental health and safety practices of the chemical supplier.

Until end of 2018, PUMA accepts chemical products that fulfil at least conformance level 0 after which minimum conformance level 1 or higher must be achieved by chemical products to be accepted. Where possible, conformance level 3 is recommended.

**Conformance Level 0:** To achieve this conformance level, a Supplier’s Declaration of MRSL Conformity from the chemical supplier must be provided. Where the chemical supplier has “declared” MRSL conformity (so-called “self-declaration”), but does not supply third-party testing or third-party certification to support the declaration, ask for evidence that the chemical supplier manufactures according to ISO standards for quality management systems or environmental management systems and has committed to the Responsible Care® initiative (e.g. via membership to a trade association committed to the initiative [http://www.icca-chem.org/en/Home/Responsible-care/](http://www.icca-chem.org/en/Home/Responsible-care/)). This declaration of conformance should be traceable to the product supplied and should include the supplier’s contact information, a unique product/batch identification, a statement of what the product conforms to, and a clear indication of the limitations of this conformance declaration.

**Conformance Level 1:** This requires third party review of analytical test reports or documentation where the data meets the Quality Assurance and Quality Control requirements to be accepted as evidence of conformance.

**Conformance Level 2:** To achieve this level, all elements and requirements of conformance level 1 have to be met. Additionally, a set of product stewardship practices of the chemical supplier are certified by a third-party.

**Conformance Level 3:** The conformance level 3 includes a third-party certification of the chemical supplier including a site visit to evaluate the product stewardship first-hand. Bluesign® certified chemical formulations fall under this compliance level.


### 3.3.4 Exchange Non-Compliant Chemicals with Safer Alternatives

There are different ways and tools of finding and purchasing MRSL compliant formulations. The following tools can be a support in sourcing MRSL compliant formulations:

**Supporting Tool 1:** ZDHC Gateway - Chemical Module: Register to the Gateway to search for chemical formulations that fulfill at least Conformance Level 0. If you cannot find a chemical formulation in the Gateway, please ask your chemical supplier to work with ZDHC on the registration of their chemical formulations. ZDHC team can be contacted via: [http://www.roadmaptozero.com/contact-us/](http://www.roadmaptozero.com/contact-us/)

**Supporting Tool 2:** bluesign® bluefinder: source chemicals listed in the bluesign® bluefinder (they are automatically MRSL compliant). For access to the bluefinder, please contact PUMA Sustainability Team (see SECTION FOUR for contact details), or bluesign technologies directly.
3.3.5 Managing Discharge - Wastewater Testing

Testing water in different steps of production (incoming, process or wastewater) and sludge is one way to control if hazardous chemicals are used, and it provides insight into where in the process hazardous chemicals might have entered the production facility.

Suppliers shall manage their wastewater properly to protect the environment. Wastewater from industrial production needs to be treated by a wastewater treatment plant before it can be discharged into surface water bodies. Suppliers can use their own, or public municipal wastewater treatment plants. In every case, suppliers need to comply with national regulations for wastewater discharge.

Wastewater testing should be done according to the ZDHC Wastewater Guidelines. The Guidelines typically covers regulations set by law, but also additional parameters to protect the environment. The standard includes general chemistry (e.g. BOD, COD), but it also covers Priority Hazardous Chemicals\(^4\). Please contact the responsible person from the PUMA Sustainability team (see SECTION FOUR) for information on PUMA’s wastewater testing procedure.

PUMA reports on the progress towards Zero Discharge of Hazardous Chemicals in its annual financial and sustainability reporting, following the Right-to-Know Principle\(^5\) to ensure transparency and keeping the general public informed.

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PUMA asks its suppliers with wet-processes to test their wastewater twice per year, and upload the test results on a publicly accessible platform as, for instance, the Chinese platform provided by IPE (Institute of Public and Environmental Affairs) and/or the ZDHC Wastewater Platform.

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3.4 Chemical Management System Guidance

To reduce risk in the supply chain, PUMA requires its suppliers to implement a robust chemical management system in their production facilities. Comprehensive information on the implementation of a chemical management system can be found in the ZDHC “Chemical Management System Guidance Manual”, which can be found on the ZDHC website:


Extensive information about chemical discharge into wastewater, air emissions, and solid waste is also available in the AFIRM Chemical Guidance Document:


A good example of an input-stream management system is the bluesign® system. For more information on the bluesign® system, please visit: www.bluesign.com

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\(^4\) Eleven Priority Chemicals and be found at the PUMA Sustainability website: http://about.puma.com/en/sustainability/environment/zero-discharge-of-hazardous-chemicals

\(^5\) The Right-to-Know Principle is defined as practice that allows members of the public access to environmental information – in this case specifically about the use and discharge of chemicals based on reported quantities of releases of hazardous chemicals to the environment, facility-by-facility, year-by-year.
Enforcing environmental standards, both product and production-related, may also benefit economically by generating savings, for example through the reduction of resources and energy consumption.
If you have any questions or need additional information, please contact us. You can find the main PUMA contacts for each subject in the following table:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Contact Name</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Testing and Guideline, IPE Platform, Environmental Audits</td>
<td>Mr. Vincent Chen</td>
<td><a href="mailto:Vincent.Chen@puma.com">Vincent.Chen@puma.com</a></td>
</tr>
<tr>
<td>PUMA RSL Database, Restricted Substances List, AFIRM, RSL Remediation Procedure</td>
<td>Mr. Edelberto Anit</td>
<td><a href="mailto:rsl@puma.com">rsl@puma.com</a>, <a href="mailto:Edelberto.Anit@puma.com">Edelberto.Anit@puma.com</a></td>
</tr>
<tr>
<td>ZDHC, MRSL</td>
<td>Mr. Stefan Seidel</td>
<td><a href="mailto:Stefan.Seidel@puma.com">Stefan.Seidel@puma.com</a></td>
</tr>
<tr>
<td>bluesign® System Partnership</td>
<td>Mr. Stefan Seidel</td>
<td><a href="mailto:Stefan.Seidel@puma.com">Stefan.Seidel@puma.com</a></td>
</tr>
<tr>
<td>Biocides, nanomaterials, odor</td>
<td>Mr. Edelberto Anit</td>
<td><a href="mailto:rsl@puma.com">rsl@puma.com</a>, <a href="mailto:Edelberto.Anit@puma.com">Edelberto.Anit@puma.com</a></td>
</tr>
<tr>
<td>Issuance of Letter of Authorization (LoA), RSL Summary Sheets</td>
<td>Ms. Angela Yeung</td>
<td><a href="mailto:Angela.Yeung@puma.com">Angela.Yeung@puma.com</a></td>
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<tr>
<td></td>
<td>Mr. Edelberto Anit</td>
<td><a href="mailto:rsl@puma.com">rsl@puma.com</a>, <a href="mailto:Edelberto.Anit@puma.com">Edelberto.Anit@puma.com</a></td>
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</table>
## Appendix

The following appendices are listed in the order in which they appear in this handbook.

### I. Glossary

<table>
<thead>
<tr>
<th><strong>AFIRM</strong></th>
<th>Apparel and Footwear International RSL Management Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFIRM</td>
<td>A collaboration of apparel and footwear brands that builds a recognized global center of excellence, providing resources to enable continuous advancement of chemical management best practices. This approach is based on transparency, science, and collaboration with relevant industries and experts to build safer and more sustainable chemistry within the apparel and footwear supply chains. One achievement of the AFIRM Group is the release of the Joint AFIRM Restricted Substances List (RSL) in December 2015 - a harmonized RSL for brands, retailers and suppliers. The AFIRM RSL provides up-to-date limits based on newest regulations, corresponding test methods, and potential uses of the chemicals in an easy-to-read format.</td>
</tr>
<tr>
<td>bluesign® System</td>
<td>PUMA is bluesign® system partner since 2014. The bluesign® system focus guarantees the application of sustainable ingredients in a clean process at which end stands a safely manufactured product. As a result, the textile industry manages the natural resources soundly and responsibly, reduces water and air emissions, improves its wastewater treatment and generally reduces its ecological footprint. With this holistic approach, the bluesign® system unites all partners of the textile industry to realize an environmentally friendly and sustainable textile production worldwide. PUMA believes in the approach of an input-stream management system and highly encourages all suppliers to become bluesign® system partners. Within our strategy to focus on more sustainable raw materials, we have set the target of increasing the use of bluesign® approved materials in our product range until 2020. For further information on the bluesign® system, please visit the following link <a href="http://www.bluesign.com">http://www.bluesign.com</a>.</td>
</tr>
<tr>
<td>BOD</td>
<td>Biochemical Oxygen Demand</td>
</tr>
<tr>
<td>BOM</td>
<td>Bill of Material</td>
</tr>
<tr>
<td>CoC</td>
<td>Certificate of Compliance</td>
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<tr>
<td>COD</td>
<td>Chemical Oxygen Demand</td>
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<tr>
<td>CPSC</td>
<td>Consumer Product Safety Commission</td>
</tr>
<tr>
<td>CPSIA</td>
<td>Consumer Product Safety Commission</td>
</tr>
<tr>
<td>LoA</td>
<td>Letter of Authorization</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>A PUMA referenced Tier 1 supplier or manufacturer of finished products</td>
</tr>
<tr>
<td>MRSL</td>
<td>Manufacturing Restricted Substances List</td>
</tr>
<tr>
<td>RSL</td>
<td>Restricted Substances List</td>
</tr>
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<td>Supplier / Material Supplier</td>
<td>A Tier 2 and 3 supplier, producing fabrics, component or trims to be used in PUMA products.</td>
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<tr>
<td>ZDHC</td>
<td>Zero Discharge of Hazardous Chemicals Program</td>
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</table>

PUMA is a founding member of the ZDHC which started its work in 2011. The mission is to advance towards zero discharge of hazardous chemicals in the textile and footwear supply chain and act to improve the environment and people’s well-being. ZDHC’s vision is widespread implementation of sustainable chemistry and best practices in the textile and footwear industries to protect consumers, workers and the environment. ZDHC represents more than 20 leading apparel and footwear brands committed to working together to drive industry-wide change. The ZDHC released a roadmap addressing the challenging goal of zero discharge of hazardous chemicals by 2020: [http://www.roadmaptozero.com/](http://www.roadmaptozero.com/).
## II. PUMA Test Matrix

<table>
<thead>
<tr>
<th>Material</th>
<th>Leather</th>
<th>Textiles</th>
<th>Polymers, Plastics</th>
<th>Prints</th>
<th>Coatings</th>
<th>Metal</th>
<th>Glass</th>
<th>Paper, Packaging</th>
<th>Care labels</th>
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<td>C</td>
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<tr>
<td>2(Cd, Cr VI, Pb, Hg) = 100 mg/kg</td>
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<tr>
<td>Nickel (Ni) - release (in metal parts)</td>
<td>X</td>
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<tr>
<td>N-Nitrosoamine</td>
<td>X</td>
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<tr>
<td>Organon Compounds</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Ortho-Phenylphenol</td>
<td>X</td>
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<tr>
<td>Per and Polyfluorinated Chemicals (DFCs)</td>
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<tr>
<td>Pesticides, Agricultural</td>
<td>X</td>
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<tr>
<td>PHTHALATES</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>pH-value</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Polymeric Aromatic Hydrocarbons (PAHs)</td>
<td>X</td>
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<tr>
<td>Styrene Monomer</td>
<td>X</td>
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<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td>X</td>
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</tbody>
</table>

1. PVC is not allowed to be used in any product.
2. No PFCs allowed to be used after end of 2017. Test only necessary if treated with stain or water repellent finish.
3. DMFu test only if treated with biocidal finish (finish must be approved by PUMA).
4. Only if treated with flame retardant finish (finish must be approved by PUMA).
Additional testing criteria for specific products are summarized in the following table:

<table>
<thead>
<tr>
<th>Product type</th>
<th>Examples</th>
<th>Testing requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronics</td>
<td>headphones, LED packs</td>
<td>Electronics usually contain metal parts and polymers/plastics. Therefore, please refer to those columns in the testing matrix (i.e. F, G, H, or K) and test according to all contained materials.</td>
</tr>
<tr>
<td>Chemicals</td>
<td>cleaning agents, cement, glues, primers</td>
<td>Chemicals must be compliant to the ZDHC MRSL. Tests should be based on ZDHC MRSL limit values and test methods.</td>
</tr>
</tbody>
</table>
| Trims and components | yarns laces, threads, sockliners, zippers, plastic shoe bottom parts with textile cover | Test according to material composition e.g. natural fibers, synthetic fibers, polymers, EVA, metals, etc. If a trim or component contains different material types, perform tests for all types according to the applicable column in the test matrix.  
**Example:** for synthetic fibers + Polyurethane (PU) choose column E and G. |

Third party testing laboratories and suppliers can additionally refer to the PUMA RSL Database Training Manual for more details on testing requirements, which can be downloaded from the Database.
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