



# Introduction to the AFIRM Supplier Toolkit

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# AFIRM Toolkit History

- First version published October 2008
- Supplier Feedback:
  - Seemed geared toward brands
  - More technical information and examples requested
  - Request for AFIRM combined RSL to meet all brand requirements



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# New 2011 AFIRM Supplier Toolkit



- Published November 2011
- Responds to Supplier Feedback
  - Geared toward suppliers
  - More detailed information on more chemicals
  - Improved formatting and internal links
- Available in Chinese & Vietnamese
  - More languages planned in 2013

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# *New* 2011 AFIRM Supplier Toolkit

- Key Additions
  - RSL Failures with corrective action examples in simple format
  - Detailed Chemical Guidance Document with full Index
- ***Resources available for all levels of technical expertise***



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# Where are the risks?

	Natural fibres	Synthetic fibres	Natural and synthetic blends	Artificial leather with fibre backing	Natural leather	Plastic, rubber, paint, and coatings	Natural materials (e.g., paper, wood)	Metal	Fusing, padding, feather, and down
AP / APEO	•	•	•	•	•	•			•
AZO	•	•	•		•				
Cationic Surfactant		•	•						
Chlorinated Organic Carriers		•	•						
Chloroparaffins (SCCP and MCCP)					•				
Chromium VI					•				
Disperse Dyes		•	•						
Flame Retardants	If special finish								•
Formaldehyde	•	•	•		•	•	•		•
Metals, extractable	•		•		•				
Metals, total				•		•		•	
Nickel release								•	
Perfluorooctane Sulfonate (PFOS) and PFOS-related substances	If water-repellent finish								
Perfluorooctane Acid (PFOA) and its salts	If water-repellent finish								
pH-value	•		•						
Phenols	•		•		•		•		•
Phthalates				•		•			
Polycyclic Aromatic Hydrocarbons (PAHs)						•			
PVC				•		•			
Tin Organic Compounds				•		•			



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# Background on Restricted Substances

RESTRICTED SUBSTANCES	DESCRIPTION & WHERE THEY MAY BE FOUND
<p><i>Alkyphenol Ethoxylates (APEOs) / Alkyphenols (AP)</i></p> <p><i>Nonylphenol Ethoxylates (NPEO)</i>  <i>Octylphenol Ethoxylates (OPEO)</i>  <i>Nonylphenol (NP)</i>  <i>Octylphenol (OP)</i></p>	<p>APEOS are non-ionic surfactants including NPEOs, OPEOs, NP, and OP. NPEOs and OPEOs degrade into NP and OP, respectively.</p> <p>APEOs can be used as or found in:</p> <ul style="list-style-type: none"> <li>• Detergents</li> <li>• Scouring agents</li> <li>• Wetting agents</li> <li>• Softeners</li> <li>• Emulsifier/dispersing agents for dyes and prints</li> <li>• Impregnating agents</li> <li>• Degreasing agents for leather</li> <li>• Leather Finishing</li> <li>• De-gumming for silk production</li> <li>• Dyes and pigment preparations</li> <li>• Polyester padding</li> <li>• Down/feather fillings</li> </ul>



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# Appendix B - Factory Management Plan

## 7. Data Management

- 7.1. Access to RSL data throughout the supply chain is a key component in management strategy for the RSL. Strategic testing of materials is critical for streamlining RSL management.
- 7.2. Describe how you manage data you collect from sample analysis/testing and how you share that information with your partners
- Do you have a database for all testing data?
  - Do you send this data for management review on a regular basis?
  - Do you identify suppliers with repeated failures and put them on notice?

## 8. Tracking Time Table

- 8.1. Set up a time table which identifies your RSL Plan of each year. Some items must be included, such as: Four deadlines of reviewing of your RSL Data trend; One training/meeting on RSL to your vendors; Summary of your RSL tracking from Purchasing at the end of the year.

Example:

Progress	Target Date	Finish Date
Complete RSL Plan and present to factory management	1/20/13	
Discuss RSL Plan with vendors	2/20/13	
Set up the RSL Action Plan Schedule	4/20/13	
Prepare material for RSL testing	5/20/13	
Finish RSL testing	6/20/13	
Review RSL data trend with vendors	7/20/13	
Review and revise RSL plan for continuous improvement	8/20/13	



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# Appendix D – Best Practices to Avoid RSL Issues

	Restricted Substance	Manufacturing Technology that Could Introduce The Substance	Steps to Avoid Restricted Substance in Finished Products
Natural Fibers (cotton, rayon, wool, hemp, etc.)	Formaldehyde	Resins to prevent shrinkage	Use formaldehyde free resins; Use low formaldehyde resins & fully cure to chemical supplier specifications to remove free formaldehyde.
		Resins to prevent wrinkling	Use formaldehyde free resins; Use low formaldehyde resins & fully cure to chemical supplier specifications to remove free formaldehyde.
		Resins to permanently include wrinkles	Use formaldehyde free resins; Use low formaldehyde resins & fully cure to chemical supplier specifications to remove free formaldehyde.
		Discharge Printing	Water based discharge printing systems rely on Zinc Formaldehyde Sulfonate (ZFS). Discharge prints must be used according to manufacturers instructions to meet adult formaldehyde requirements.
		Pigment print binder	Use formaldehyde free binders; Use low formaldehyde binders & fully cure to chemical supplier specifications to remove free formaldehyde.
	Heavy metals (mercury, lead, cadmium)	Dye stuff	Use dyestuff from internationally recognized dye stuff suppliers with commitments to chemical compliance.
		Pigment prints	Use pigments from internationally recognized dye stuff suppliers with commitments to chemical compliance.
	Azo amines	Dye stuff	Use dyestuff from internationally recognized dye stuff suppliers with commitments to chemical compliance.
		Pigment prints	Azo structures in pigments can cleave into one of the harmful amines. With low solubility the consumer risk is minimal, but GC/MS will detect amines. LC/MS can be used for proper confirmation. Check with ETAD <a href="http://www.etad.com">www.etad.com</a> for a list of pigments that pose this risk.
	Synthetic Fibers (polyester, nylon, acetate, acrylic, etc.)	Formaldehyde	Resins to prevent shrinkage
Resins to prevent wrinkling			Use formaldehyde free resins; Use low formaldehyde resins & fully cure to chemical supplier specifications to remove free formaldehyde.
Resins to permanently include wrinkles			Use formaldehyde free resins; Use low formaldehyde resins & fully cure to chemical supplier specifications to remove free formaldehyde.
Cross linking agent in coating processes			Use formaldehyde free resins; Use low formaldehyde resins & fully cure to chemical supplier specifications to remove free formaldehyde.
Heavy metals (mercury, lead, cadmium)		Dye stuff	Use dyestuff from internationally recognized dye stuff suppliers with commitments to chemical compliance.
		Stabilizer	More likely in molded plastics than fibers, but cadmium should not be used as a stabilizer.
		Polymer extrusion contamination	Heavy metals such as lead, cadmium and mercury are not likely intentionally used in polymer extrusion, but could be present due to contamination.
Disperse dyes		Dye stuff	Use dyestuff from internationally recognized dye stuff suppliers with commitments to chemical compliance. Orange 37/76 is the most common failure and is commonly found in dark colors which use Orange 37/76 in the recipe.
		Azo dyes	Dye stuff



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# Appendix E – RSL Corrective Actions

## Restricted Substance Problem Solution Prevention Library



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# Appendix E – RSL Corrective Actions

## Problem #6

- Socks were tested for VOC's and found to contain Dimethylformamide, methylene chloride, and acetone
- Supplier was found to be lubricating the knitting yarn with an unlabelled solvent with no MSDS information



### SOLUTION:

- Production was stopped immediately
- All current stock/shipments destroyed
- Supplier is under review and production in their facility has been suspended
- Supplier required to prove factory corrective action plan before production can resume

Misc.



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# Appendix F – Detailed Chemical Guidance Document



## CHEMICAL GUIDANCE DOCUMENT

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# Appendix F – Detailed Chemical Guidance Document

## AFIRM Chemical Guidance Document

### 2.3.5 Polyurethane (PU)

Polyurethane polymers are formed by reacting at least two **isocyanate** functional groups with at least two alcohol groups in the presence of a catalyst (e.g., tertiary amines such as dimethylcyclohexylamine, and organometallic salts such as **dibutyltin dilaurate**). **Dibutyltin dilaurate** always contains impurities of **tributyltin monolaurate**. The first essential component of a polyurethane polymer is the **isocyanate**. Molecules that contain two **isocyanate** groups are called **diisocyanates**. These molecules are also referred to as monomers or monomer units, since they themselves are used to produce polymeric **isocyanates** that contain three or more isocyanate functional groups. **Isocyanates** can aromatic compounds such as **diphenylmethane diisocyanate (MDI)** or **toluene diisocyanate (TDI)**, or aliphatic compounds such as **hexamethylene diisocyanate (HDI)** or **isophorone diisocyanate (IPDI)**.



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# Appendix I – Screen Printing Best & Worst Practices



## Screen print Ink Storage Best Practices

- Storage room dedicated to ink
- Room clean and free of clutter
- Shelves available to organize ink by type and keep containers off the floor
- Shelves clearly labeled
- Ink chemical containers properly labeled
- Ink containers clean, any spills cleaned immediately
- MSDS, spill clean up equipment available



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# Appendix J – Frequently Asked Questions (FAQ)

30. Q: For the sample shown below, is a separate RSL test required for each different color, or could a composite test be performed by combining all colors?



A: Composite testing is allowed by some AFIRM brands and not others. Brands that do allow compositing have different limits for the number of samples that may be included in a composite. This number may vary depending on the materials tested and the restricted substance tested for.

If composite testing is allowed, and if, for example, three is the maximum number of materials allowed for composite testing, a composite of equal amounts of the three materials can be tested. Brand policy as well as nominated laboratories will direct suppliers on composite requirements or restrictions.

31. Q: For an embroidered badge, can RSL testing be performed using a composite test for all colors and all different layers?

A: For those AFIRM brands that allow compositing, RSL testing should be performed by compositing the colors. A separate test of the adhesive layer should be performed if it is possible to separate that adhesive layer.

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# Appendix L – Additional Online Resources

## Appendix L—Additional Online Resources

### Chemical Restriction Information

#### **Restricted Substance Lists and Resources**

##### **AAFA Restricted Substance List**

<https://www.apparelandfootwear.org/Resources/RestrictedSubstances.asp>

This Restricted Substances List (RSL) was created by a special working group of the American Apparel & Footwear Association’s (AAFA) Environmental Task Force. The RSL is intended to provide apparel and footwear companies with information related to regulations and laws that restrict or ban certain chemicals and substances in finished home textile, apparel, and footwear products around the world. The American Apparel & Footwear Association (AAFA) is the national trade association representing apparel, footwear and other sewn products companies, and their suppliers, which compete in the global market.

##### **AFIRM Brand Links (available on AFIRM website)**

<http://www.afirm-group.com/companies.htm>



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# AFIRM Toolkit Website

- <http://www.afirm-group.com/suppliersrsltool.htm>
- Contact: [info@afirm-group.com](mailto:info@afirm-group.com)



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