

### 3. Where Are the Risks?

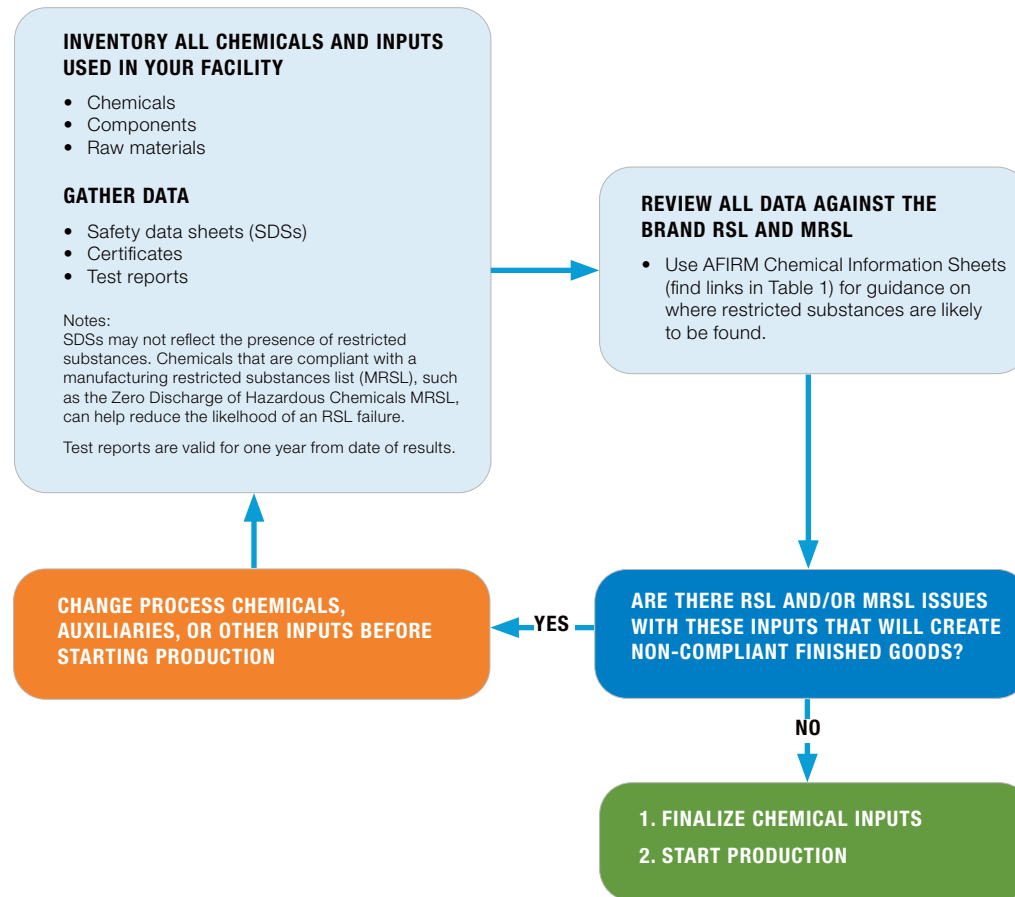
In the apparel and footwear supply chain, there are certain types of fibers and materials that are more likely to contain restricted substances. Many brands require testing of products prior to shipment to assure that the shipment does not contain articles not in compliance with their RSLs. (See Section 5 of this Toolkit for more information on testing and see Appendix B for a model testing program.)

#### Understanding Chemical Risks

The AFIRM RSL includes a risk matrix that indicates which substances are likely to be found in materials typically used in the manufacture of apparel, footwear, certain accessories, and equipment. This is a good starting point for understanding chemical risks in the supply chain.

The flowchart in Figure 1 will help suppliers review production methods and ensure that they meet brand RSL requirements.

Figure 1. Understanding Chemical Risks



## AFIRM Chemical Information Sheets

Since 2017, AFIRM Group has published a series of Chemical Information Sheets. Table 1, on the next page, provides links to these publications in four languages.


These documents serve as a single point of reference for the substances (or categories of substances) in the AFIRM RSL.

The sheets provide a brief background on where the substances are used in the supply chain, the reasons these substances are restricted, as well as guidance on sourcing compliant materials or safer alternatives.

Readers should not rely solely on these documents to address specific questions. All questions should be directed to the specific brand whose products are at issue.

AFIRM assumes no liability of any kind whatsoever resulting from the use of or reliance upon the contents of these documents.

[www.afirm-group.com/chemical-information-sheets](http://www.afirm-group.com/chemical-information-sheets)



Chemical Information Sheet  
 Version 2.0 | March 2021

ACETOPHENONE & 2-PHENYL-2-PROPANOL

Other Names	CAS Number	Substance
Acetophenone, Methyl phenyl ketone, Acetylbenzene	98-86-2	Acetophenone
2-Phenyl-2-propanol, 1-Hydroxypropanone, Dimethylphenyl-methanol	617-94-7	2-Phenyl-2-Propanol

**May Be Found In:**

- Ethylene-vinyl-acetate (EVA) foams produced with dicumyl peroxide as a crosslinking initiator
- Fragrances, solvents, and cleaners

**Acetophenone and 2-Phenyl-2-Propanol are potential byproducts that may be found in Ethylene-vinyl-acetate (EVA) foams when specific peroxide initiators are in use.**

**Uses in the Supply Chain**

There are few direct uses of acetophenone or 2-phenyl-2-propanol in the supply chain. These two chemicals are byproducts when a peroxide initiator called dicumyl peroxide (DCP) is used in ethylene-vinyl-acetate (EVA) foam production. DCP initiates a crosslinking reaction in EVA foam by creating peroxide radicals, and both acetophenone and 2-phenyl-2-propanol are potential endpoints for the radicals once they have been deactivated.

**Why Acetophenone & 2-Phenyl-2-Propanol are Restricted**

- Neither of these chemicals are highly regulated in finished products at this time, but multiple brand RSLs and the AFIRM RSL restrict these chemicals.
- The German Federal Institute for Risk Assessment (BfR) has written a comment about Acetophenone and 2-Phenyl-2-Propanol that potentially cause allergic reactions. There are complaints by German authority labs when these substances are found in high concentrations in shoes.
- Acetophenone has a sweet pungent odor of orange blossom or juniper, with an odor threshold of about 0.83 milligrams per cubic meter (mg/m<sup>3</sup>).
- AFIRM has voluntarily restricted acetophenone and 2-phenyl-2-propanol due to this odor which has prompted concerns from some enforcement agencies.
- Acetophenone is classified as: Acute Tox. 4 - H302 and Eye Irrit. 2 - H319
- 2-Phenyl-2-propanol is classified as: No classification at this time.

**Sourcing Compliant Materials from Your Suppliers**

- Contact your suppliers and explain that you require their manufactured materials to be compliant with the current AFIRM RSL limits.
- Require suppliers to submit a confirmation of material compliance or a test report from a third-party laboratory.
- When materials are received, consider performing risk-based testing to ensure the current AFIRM RSL limits are met.

1

Table 1. AFIRM Chemical Information Sheets

Substance	Language	Substance	Language
Acetophenone and 2-Phenyl-2-Propanol		Metals - Extractable	
Alkylphenol Ethoxylates (APEOs)		Metals - Chromium VI	
Alkylphenols (APs)		Metals - Nickel Release	
Azo-amines and Arylamine Salts		Monomers (Styrene and Vinyl Chloride)	
Bisphenols		Nitrosamines	
Butylated Hydroxytoluene (BHT)		Organotin Compounds	
Chlorinated Paraffins (SCCP MCCP)		Ortho-phenylphenol (OPP)	
Chlorophenols		Ozone Depleting Substances	
Chlorinated Benzenes and Toluenes		Perfluorinated and Polyfluorinated Chemicals	
Dimethylfumarate (DMFu)		Pesticides, Agricultural	
Dyes - Acid, Basic, Direct, Solvent		Phthalates	
Dyes - Disperse		Polycyclic Aromatic Hydrocarbons (PAHs)	
Flame Retardants		Quinoline	
Fluorinated Greenhouse Gases		Solvents/Residuals	
Formaldehyde		UV Absorbers/Stabilizers	
Metals - Total		Volatile Organic Compounds (VOCs)	