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Nike, Inc. Chemistry Playbook & Restricted Substances List Update Summary for: 2018

THE NIKE CHEMISTRY PLAYBOOK & RSL

In 2018, Nike created the Chemistry Playbook, which now includes the Nike RSL. The Playbook is designed to outline Nike goals and achievements, relating these to production practices with guidance on input stream management, inventory/use/handling, wastewater, and material or product compliance. Suppliers can now find relevant chemistry programs in one place, with a clear picture of how the work relates across the business and supply chain partners.

CHEMICAL LIMIT CHANGES

In the 2018 Nike Chemistry Playbook and RSL, Nike continues to align with the chemical limits and testing methods published in the 2018 AFIRM Group RSL (<http://afirm-group.com/afirm-rsl/>). Nike uses the AFIRM limits each year to update our RSL, which we still maintain as a core system for assuring material and product compliance. Please refer to the full Nike RSL document for complete information on sample selection, material testing requirements, and full implementation guidance (<http://www.nikeincchemistry.com>).

Changes to the chemical limits and addition or removal of specific chemistries is outlined in the **Table 1**.

MATERIAL TESTING MATRIX CHANGES

Changes to the Nike Material Testing Matrix are outlined in **Table 2**. These changes indicate update to material testing requirements and revisions to material types/test packages. **Table 3** shows how these changes look within the Chemistry Playbook and RSL.

QUESTIONS

For questions on revisions to the RSL limits or implementation guidance, please contact RSLsupport@nike.com.



TABLE 1 - SUMMARY OF CHANGES TO SUBSTANCES AND LIMITS

| CAS Number | Substance or Section | Modification |
|-----------------------------|--------------------------------|--|
| Various | Acidic and alkaline substances | pH limits added for textiles and leather |
| Various | Alkylphenols (AP) | Test method for NP/OP updated: Extraction: 1 g sample/20 mL THF, sonication for 60 minutes at 70°C Analysis: EN ISO 18857-2 |
| Various | Azo-amines | Test method for textiles changed to: EN ISO 14362-1:2017 and EN ISO 14362-3:2017 for p-Aminoazobenzene |
| 85535-84-8, 85535-84-9 | Chlorinated Paraffins | Test method changed to combined CADS / ISO 18219:2015 method V1:06/17 (extraction by ISO 18219 and analysis by GC-NCI-MS) |
| 68-12-2 | Dimethylformamide (DMFa) | Updated ranges to: 500ppm (pass); 500 to 1000ppm (warning); >1000ppm (do not ship) |
| Various | Dyes, Forbidden and Disperse | Limit changed to 50 ppm each |
| 118685-33-9 & Not Allocated | Dyes, Navy Blue | Limit changed to 50 ppm each |
| Various | Flame Retardants | Method changed to EN ISO 17881-1, -2:2016; limit changed to 10 ppm each |
| Various | Heavy Metals | Extractable Methods changed to Textiles: DIN EN 16711-2:2016, Leather: DIN EN ISO 17072-1:2017 Total Content Methods changed to Textiles: DIN EN 16711-1:2016, Leather: DIN EN ISO 17072-2:2017 |
| 7440-43-9 | Cadmium (Cd) | Limit changed to 40 ppm for all ages |
| 7440-47-3 | Chromium (Cr) | Extractable limit for textiles changed to 2 ppm |



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| CAS Number | Substance or Section | Modification |
|---------------------------------|---|--|
| 18540-29-9 | Chromium VI | Leather extractable measurement method EN ISO 17075-2:2015 added in cases of color interference. Textiles method changed to DIN EN 16711-2:2016 with EN ISO 17075-1:2017 if Cr is detected |
| 7440-48-4 | Cobalt (Co) | Extractable limit for adults changed to 4 ppm |
| 7440-50-8 | Copper (Cu) | Extractable limit for adults changed to 50 ppm |
| 75-01-4 | Vinyl Chloride | Vinyl Chloride added to the Monomers Section with a limit of 1 ppm Test method: EN ISO 401:2008 |
| Various | N-Nitrosamines | LC/MS/MS verification method added if positive GC/MS result. Alternatively, LC/MS/MS may be performed on its own. Method prEN 19577:2017 added. |
| Various | Organotins | Specified which "Tri-substituted Organotins" are restricted: TCyHT, TMT, TOT, TPT |
| 90-43-7 | Ortho-phenylphenol (OPP) | Method changed to 1 M KOH extraction, 12-15 hours at 90 °C, derivatization and analysis § 64 LFGB B 82.02-08 or DIN EN ISO 17070:2015 |
| Various | Ozone depleting substances | Laboratory reporting limit of "typically, 5ppm each" added |
| Various | Pesticides, Agricultural and Residual | Removed Hexabromobiphenyl, Parathion, Pentabromobenzene, Permethrin |
| 131-18-0 84-61-7 | Phthalates: Di-n-pentyl phthalate (DPENP) Dicyclohexyl phthalate (DCHP) | Added two new phthalates to the list. REACH SVHC phthalates removed and covered by general provisions. |
| Various | UV Inhibitors | Added 4 UV inhibitors to RSL table. Added a class called "UV Inhibitors" to the material test matrix, and added core testing for polyurethane foam materials. |
| 75-15-0 108-94-1 100-41-4 | VOCs | Added Carbon Disulfide, Cyclohexanone, and Ethylbenzene |



TABLE 2 - MATERIAL TESTING MATRIX CHANGES

| Material Type/Test Package | Class | Chemical & CAS Number | Modifications |
|-----------------------------------|-------------------|----------------------------------|---|
| Synthetic Leather | Various | ---- | Created a new material type (test package) specific for synthetic leather in the test matrix. Previously, synthetic leather was part of the polymers test package. |
| Synthetic Leather | Dimethylformamide | Dimethylformamide (68-12-2) | Changed dimethylformamide from supplemental testing to core testing for synthetic leather test package. Also added an asterisk (*) to coated leather as a strong suggestion to add as an additional test to the standard test package. |
| Synthetic Leather | Formaldehyde | Formaldehyde (50-00-0) | Formaldehyde was changed from a core test to a supplemental test for synthetic leather materials. |
| Synthetic Leather | UV Inhibitors | Various | Added UV inhibitors as core test for polyurethane foam materials (example – foam materials attached to the synthetic leather substrate) |
| Thermoplastics, Polymers | Dimethylformamide | Dimethylformamide (68-12-2) | Removed supplemental testing requirement for dimethylformamide from thermoplastics, polymers material test package (moved to synthetic leather test package, above) |
| Thermoplastics, Polymers | UV Inhibitors | Various | Added UV inhibitors as core test for polyurethane foams |



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| Restricted Substance | Natural Fibers | Synthetic Fibers Nylon, PET | Natural and Synthetic Fiber blends | Thermoplastics, Polymers EVA, PU, Rigid Plastic, TPU, Foam, Rubber | Synthetic Leather | Natural Leather | Coated Leather | Inks, Paints, Heat Transfers Screen Print Inks | Adhesives | Screenprint Strike-offs | Sublimation Prints, digital Prints | Metal Items | Other Rhinestones, sequins, etc. |
|--|--|--------------------------------|------------------------------------|---|-------------------|-----------------|----------------|---|-----------|-------------------------|------------------------------------|-------------|-------------------------------------|
| Metals (Chromium VI) | | | | | | C-4 | C-4 | | | | | | |
| Metals (Extractable) | C | C | C | | | S-8 | | | | | | | |
| Metals (Nickel Release) | | | | | | | | | | | | C-10 | C-3 |
| Metals (Total) | S | S | S | C | C | C | C | C | C | | C | C | C-3 |
| Monomers | | | | S-7 | | | | | | | | | S-7 |
| N-Nitrosamines | | | | S | | | | | | | | | |
| Organotin Compounds | S-2 | S-2 | S-2 | C-2 | C-2 | C-2 | C-2 | C-2 | C-2 | | C-2 | | |
| Ortho-phenylphenol | | | | | | S | S | | | | | | |
| Ozone Depleting Substances | Prohibited | | | | | | | | | | | | |
| Pesticides, Agricultural | S | | S | | | | | | | | | | |
| Perfluorinated and Polyfluorinated Chemicals | PFOA and PFOS Core testing for materials with water-repellent finishes | | | | | | | | | | | | |
| pH | S | S | S | | | S | S | | | | | | |
| Phthalates | | | | C | C | | C | C | C | C | C | | C-3 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | S | S | | | S | | | | | |
| Polyvinyl-chloride (PVC) | | | | C | S | | C | C | C | C | C | | C-3 |
| UV Inhibitors (UV 320, 327, 328, 350) | | | | C-9 | C-9 | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | S | S | | | S | S | | | | |



Key for the Testing Matrix

| | | |
|--------------------------|---|--|
| C = Core Testing | C-1 = Screen print ink only | C-8 = Testing for dyes is not Core testing on white textile materials; Supplemental testing only |
| | C-2 = If Tin in sample >0.1 mg/kg | C-9 = core testing on polyurethane foam materials |
| | C-3 = Core tests vary by material type; consult with lab or Nike RSL team | C-10 = Only Metal items coming into skin contact |
| | C-4 = If total Cr screening is > 3 mg/kg, analyze for Cr(VI) | * = Suggest adding as an additional test for coated leather; to add, select as an individual test at the bottom of the TRF |
| S = Supplemental Testing | S-2 = If Tin in sample >0.1 mg/kg | S-7 = Styrene in ABS materials |
| | S-5 = EVA foams only | S-8 = Infant/Toddler leather footwear only |
| | S-6 = Food and mouth contact items only | |