



# Footwear Chemical Fail Rate Analysis

Top 10 Chemicals by Quarter

2nd Quarter 2018 (April - June)

| Lab: TÜV SÜD                      |                                |                                        |                                                               |                 |           |
|-----------------------------------|--------------------------------|----------------------------------------|---------------------------------------------------------------|-----------------|-----------|
| Test Item                         | Material                       | Test Method                            | Requirement                                                   | Number of Tests | Fail Rate |
| 1 Dimethylformamide (DMFA)        | Coated Textile                 | ISO 16189                              | Skin Contact:<50mg/kg<br>Without Skin Contact:300 mg/kg       | 832             | 40.38%    |
| 2 Chromium VI - wet test          | Leather                        | ISO 17075<br>BVL B 82.02-11            | < 3.0 mg/kg                                                   | 1059            | 11.14%    |
| 3 pH                              | Leather and Textile            | ISO 4045<br>ISO 3071                   | Leather:3.5 - 9.0<br>Textile:4.0-7.5                          | 6805            | 8.67%     |
| 4 Migration of certain elements   | Textile, Plastic, and Coating  | ASTMF963-11, EN 16711-2, ISO 17072-1   | Pb<90, Sb<60, As<25, Ba<1000, Cd<75, Cr<200, Hg<60, Se<500ppm | 970             | 5.36%     |
| 5 NP, OP, NPEO, OPEO              | Textile and Leather            | ISO 18254-1<br>ISO 18218-1             | Each<100 mg/kg                                                | 5512            | 4.93%     |
| 6 Total Arsenic & Cadmium Content | Coating, Plastics, and Metal   | Acid digestion,<br>Microwave digestion | Arsenic < 50 mg/kg;<br>Cadmium < 100 mg/kg                    | 2823            | 4.07%     |
| 7 Phthalates                      | Plastics and Coating           | CPSC-CH-C1001-09.3<br>ISO/TS 16181     | <1000 mg/kg                                                   | 9943            | 3.44%     |
| 8 SCCP                            | Plastics, Textile, and Leather | ISO 18219                              | <1000 mg/kg                                                   | 2408            | 2.70%     |
| 9 PAH                             | Plastics and Coated Material   | AFPS GS 2014:01 PAH                    | Each PAH<0.2 mg/kg;<br>Sum of 18 PAH<10 mg/kg                 | 6292            | 2.62%     |
| 10 Formaldehyde                   | Leather and Textile            | ISO 17226-1<br>ISO 14184-1             | < 20 mg/kg for kids < 75 mg/kg for skin contact               | 8814            | 2.51%     |

| Lab: SGS                    |                      |            |
|-----------------------------|----------------------|------------|
| Test Item                   | Material             | Fail Rate* |
| 1 PAH                       | Polymers             | 4.45%      |
| 2 CrVI with aging           | Leather              | 7.75%      |
| 3 APEO                      | Textiles and Leather | 5.28%      |
| 4 Phthalate                 | Polymers             | 3.47%      |
| 5 Ni release                | Metal                | 0.91%      |
| 6 Lead                      | Polymers and Metal   | 3.19%      |
| 7 COC                       | Textiles             | 5.77%      |
| 8 TeCP/PCP                  | Textiles and Leather | 8.19%      |
| 9 CrVI without aging        | Leather              | 2.45%      |
| 10 Extractable Heavy Metals | Textiles             | 3.33%      |

\* Sample Size is Large

For chemical definitions, requirements and jurisdictions, please refer to FDRA's Global Footwear Testing Guide.