The new EN374 chemical and micro-organism protection guidelines have recently been updated for the first time in over 10 years. In order to make these changes easier to understand, Ansell has developed a series of materials to help explain what elements in the standard have changed and why it matters.

To learn more, please visit www.ansell.com/en-us/regulatory-compliance

Changes at a Glance

The new EN ISO 374 standard refines the required capabilities for gloves that protect workers whose hands are subject to chemical and/or micro-organism exposure. This summary highlights changes to the EN374 standard. To visit the Ansell Resource Center, please visit:

www.ansell.com/en-us/regulatory-compliance

NEW NOMENCLATURE

old
- EN374:2003
  - Gloves protecting from chemicals and micro-organisms.

new
- EN ISO 374:2016
  - Gloves protecting from dangerous chemicals and micro-organisms.

NEW STANDARDS AGREEMENT

old
- EN
  - Created by the European Committee for Standardization (CEN), applicable in Europe and selective affiliate countries (e.g., Australia).

old
- ISO
  - Created by the International Standards Organization; generally accepted if it complies with local regulations; subject to PPE directives in Europe.

new
- EN ISO
  - Created cooperatively by ISO or CEN under the Vienna agreement; applicable in Europe and all countries that accept ISO; the defacto standard when Europe adopts it as an ISO standard.
**NEW TESTS**

**PERMEATION**

**Old**

**EN374-3:2003**

**Scoring:** 3 specimens taken from the palm or the weakest area are tested for breakthrough times and the lowest is the result.

**Cuffs:** No standard for cuff testing.

**Chemicals Tested:** The original list includes 12 chemicals labeled A through L.

<table>
<thead>
<tr>
<th>Letter</th>
<th>Chemical</th>
<th>CAS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Methanol</td>
<td>67-56-1</td>
<td>Primary alcohol</td>
</tr>
<tr>
<td>B</td>
<td>Acetone</td>
<td>67-64-1</td>
<td>Ketone</td>
</tr>
<tr>
<td>C</td>
<td>Acetonitrile</td>
<td>75-05-08</td>
<td>Nitrile compound</td>
</tr>
<tr>
<td>D</td>
<td>Dichloromethane</td>
<td>75-09-2</td>
<td>Chlorinated paraffin</td>
</tr>
<tr>
<td>E</td>
<td>Carbon disulfide</td>
<td>75-15-0</td>
<td>Sulphur containing organic compound</td>
</tr>
<tr>
<td>F</td>
<td>Toluene</td>
<td>108-88-3</td>
<td>Aromatic hydrocarbon</td>
</tr>
<tr>
<td>G</td>
<td>Diethylamine</td>
<td>109-89-7</td>
<td>Amine</td>
</tr>
<tr>
<td>H</td>
<td>Tetrahydrofuran</td>
<td>109-99-9</td>
<td>Heterocyclic and ethereal compound</td>
</tr>
<tr>
<td>I</td>
<td>Ethyl acetate</td>
<td>141-78-6</td>
<td>Ester</td>
</tr>
<tr>
<td>J</td>
<td>n-Heptane</td>
<td>142-85-5</td>
<td>Saturated hydrocarbon</td>
</tr>
<tr>
<td>K</td>
<td>Sodium hydroxide 40%</td>
<td>1310-73-2</td>
<td>Inorganic base</td>
</tr>
<tr>
<td>L</td>
<td>Sulfuric acid 96%</td>
<td>7664-93-9</td>
<td>Inorganic mineral acid</td>
</tr>
</tbody>
</table>

**New**

**EN ISO 374:2016 / EN 16523-1:2015**

**Scoring:** 3 specimens taken from the palm are tested for breakthrough times and the lowest is the result; the performance level is correlated with the breakthrough time table.

**Cuffs:** Gloves with long cuffs greater or equal to 400mm/15.75in are also to be tested with samples taken at 80mm/3.15in from end of cuff.

**Chemicals Tested:** The chemical permeation table now includes 6 new categories labeled M through R.

<table>
<thead>
<tr>
<th>Letter</th>
<th>Chemical</th>
<th>CAS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Nitric acid 65%</td>
<td>7697-37-2</td>
<td>Inorganic mineral acid, oxidizing</td>
</tr>
<tr>
<td>N</td>
<td>Acetic acid 99%</td>
<td>64-19-7</td>
<td>Organic acid</td>
</tr>
<tr>
<td>O</td>
<td>Ammonia 25%</td>
<td>1336-21-6</td>
<td>Mineral base</td>
</tr>
<tr>
<td>P</td>
<td>Hydrogen peroxide 30%</td>
<td>7722-84-1</td>
<td>Peroxide</td>
</tr>
<tr>
<td>Q</td>
<td>Hydrofluoric acid 40%</td>
<td>7664-39-3</td>
<td>Inorganic mineral acid</td>
</tr>
<tr>
<td>R</td>
<td>Formaldehyde 37%</td>
<td>50-00-0</td>
<td>Aldehyde</td>
</tr>
</tbody>
</table>

**DEGRADATION**

**Old**

No standard in place.

**New**

**EN374-4:2013**

These are new test methods considering the glove before and after a contact with the chemical.

- **Normative:** Puncture Degradation Resistance test (as per the EN388 test for puncture resistance)
- **Informative:** Weight Change test

The results are reported in Instruction for Use as percentage of change due to degradation in perforation test.

**MICRO-ORGANISMS**

**Old**

**EN ISO 374-1:2003**

Micro-organism requirements previously defined under the EN374-1 standard.

**New**

**EN ISO 374-5:2016**

Protection against bacteria and fungi.

**New**

**EN ISO 374-5:2016 + ISO16604 / Method B:**

Protection against bacteria, fungi and virus is now included with a new pictogram marked on the glove as shown on page 4 of this guide.
NEW MARKS & REQUIREMENTS

Dangerous Chemical Pictograms
Gloves can only claim protection against Chemical Risks when:
- Type C, B or A performance is achieved using the permeation test method EN16523-1:2015 (summarized here)
- The glove is leakage proof following testing using the EN374-2:2014 method
- Degradation performance for claimed chemicals is available through the information supplied by a manufacturer

Note:
The beaker icon (low chemical resistance / waterproof) has been eliminated.

Micro-organism Pictograms
The pictogram on the left previously related to bacteria and fungi. The new standard calls for a new viral penetration test. If a glove passes this extra test, the word, "Virus" will be added under the Micro-organism pictogram.

WARNING: No glove provides complete protection against cuts, abrasions, punctures or chemicals. Users should test the suitability of Ansell products for a particular purpose, for use within a particular environment or against particular chemicals. See http://www.ansell.com/en/Legal/Disclaimer.aspx for additional information.

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