INTERNATIONAL DEODORIZATION TEST STANDARDS FOR TEXTILE PRODUCTS

In response to the rapid development of deodorizing textile products among industries in the global market, there is an increasing need for safer and more effective deodorizing techniques used in these advanced technologies.

Today, consumers value smart textiles and expect specialized technology that will provide added benefits and comprehensive protection from the clothes or shoes they wear. Therefore, freshness, comfort and hygiene are becoming competitive features of textile products, where the deodorant properties can be a key factor. There are many kinds of unpleasant odours in our daily life, such as body odour caused by metabolism and sweating, odours of pollution and cigarettes. Generally, socks, underwear, sportswear, etc., may be subject to unpleasant odours because of bacterial growth on textile products, especially after they have been worn for long periods.

Currently, the measurement of the efficacy of the deodorant mechanism varies from country to country. The traditional methods mainly use human sensory testing where the presence of odour is judged by the human sense of smell and sometimes assisted by instrumental testing methods using detector tube or gas chromatography (GC). Although a human sensory panel can assess odour in its entirety and compare odours varying in quality, it is difficult to standardize as an objective indicator. Considering this, establishing a standard evaluation method of deodorant efficacy of treated fabrics/textiles is required.

ISO 17299:2014 establishes definitions of the major component chemicals in odours and specifies the test method by using several kinds of instruments in which the reduction rate of odour from ambient gas of the textile products is determined. The deodorizing property is evaluated by measuring the reduction of the odour chemical concentration in a container with the test specimen. This is then compared to a specimen blank and then measured by using instruments or ultra-microanalysis testing methods.

Reference:
ISO Online Browsing Platform (OBP)
ISO 17299-1:2014 defines the type of odour chemical and describes the general principle of testing methods for the deodorizing property of textiles products, such as woven fabric, knit, nonwoven, fibres and yarns, braiding products, tapes and slings. The method also defines the human sensory test procedure in an Appendix for reference. The other parts of the standard: ISO 17299-2:2014 to ISO 17299-5:2014 describe the actual testing methods.

- ISO 17299-1:2014 – Determination of deodorant property - General principle
- ISO 17299-4:2014 – Determination of deodorant property - Condensation sampling analysis (which use the same low odour concentration as human sensory test due to its higher measurement sensitivity)

### TABLE 1. MAJOR COMPONENT CHEMICALS OF UNPLEASANT ODOUR

<table>
<thead>
<tr>
<th>TYPE OF ODOUR</th>
<th>THE MAJOR COMPONENT CHEMICALS REPRESENT FOR DIFFERENT TYPES OF ODOUR</th>
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</thead>
<tbody>
<tr>
<td>Toilet odour</td>
<td>Ammonia</td>
</tr>
<tr>
<td>Sweat odour</td>
<td>Ammonia, Acetic acid, Isovaleric acid</td>
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<tr>
<td>Body odour (nonenal mixture odour)</td>
<td>Ammonia, Acetic acid, Isovaleric acid, Nonenal</td>
</tr>
<tr>
<td>Excrement odour</td>
<td>Ammonia, Acetic acid, Hydrogen sulfide, Methyl mercaptan, Indole</td>
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</tbody>
</table>

The deodorization for perspiration odour is the most common claim. The SGS Hong Kong laboratory provides quality testing on treated fabrics/textiles against the standards by using detector tube and gas chromatography methods to cover deodorization on perspiration odour. For details, please do not hesitate to contact us for further information.

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