

# DIN EN 1104:2019-01 (E)

## Paper and board intended to come into contact with foodstuffs - Determination of the transfer of antimicrobial constituents

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
1	Scope .....	5
2	Normative references .....	5
3	Terms and definitions .....	5
4	Principle .....	5
5	Apparatus .....	6
6	Reagents and media .....	6
6.1	General .....	6
6.2	Non ionic wetting agent .....	6
6.3	Nutrient medium for the preparation of <i>Bacillus subtilis</i> spores .....	6
6.3.1	Composition .....	6
6.3.2	Preparation .....	6
6.4	Nutrient medium of Sabouraud for the preparation of <i>Aspergillus niger</i> spores .....	7
6.4.1	Composition .....	7
6.4.2	Preparation .....	7
6.5	Nutrient medium for the inhibition test with <i>Bacillus subtilis</i> .....	7
6.5.1	Composition .....	7
6.5.2	Preparation .....	7
6.6	Nutrient medium of modified Sabouraud for the inhibition test with <i>Aspergillus niger</i> .....	8
6.6.1	Composition .....	8
6.6.2	Preparation .....	8
6.7	Tryptone salt solution .....	8
6.7.1	Composition .....	8
6.7.2	Preparation .....	8
6.8	Test microorganisms .....	8
6.8.1	General .....	8
6.8.2	Preparation of working cultures .....	8
6.8.3	Preparation of inoculating spore suspension of <i>Bacillus subtilis</i> .....	9
6.8.4	Preparation of inoculating spore suspension of <i>Aspergillus niger</i> .....	9
6.8.5	Concentrations of spores for inhibition test .....	9
6.9	Positive controls .....	10
6.9.1	Antibiotic .....	10
6.9.2	Antifungal agent .....	10
7	Sampling and preparation of test pieces .....	10
8	Procedure .....	10
8.1	General .....	10
8.2	Preparation of plates .....	10
8.2.1	General .....	10
8.2.2	Test with <i>Bacillus subtilis</i> .....	10
8.2.3	Test with <i>Aspergillus niger</i> .....	11
8.3	Incubation .....	11
9	Evaluation .....	11

<b>10</b>	<b>Test report .....</b>	<b>12</b>
	<b>Annex A (informative) Guidelines for interpreting results .....</b>	<b>13</b>
<b>A.1</b>	<b>General .....</b>	<b>13</b>
<b>A.2</b>	<b>Negative and positive controls .....</b>	<b>13</b>
<b>A.2.1</b>	<b>Negative controls .....</b>	<b>13</b>
<b>A.2.2</b>	<b>Positive controls .....</b>	<b>14</b>
<b>A.3</b>	<b>Paper and board samples .....</b>	<b>15</b>
<b>A.3.1</b>	<b>General .....</b>	<b>15</b>
<b>A.3.2</b>	<b>Case of Bacillus subtilis .....</b>	<b>15</b>
<b>A.3.3</b>	<b>Case of Aspergillus niger .....</b>	<b>19</b>